211

122-432

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1886.

No. 277.

MAURICE GANDY, APPELLANT,

vs.

E. M. MARBLE, AS COMMISSIONER OF PATENTS, AND HIS SUCCESSOR IN OFFICE AS SUCH COMMISSIONER OF PATENTS FOR THE TIME BEING.

APPEAL FROM THE SUPREME COURT OF THE DISTRICT OF COLUMBIA.

FILED AUGUST 12, 1884.

accession 21830

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1886.

No. 277.

MAURICE GANDY, APPELLANT,

vs.

E. M. MARBLE, AS COMMISSIONER OF PATENTS, AND HIS SUCCESSOR IN OFFICE AS SUCH COMMISSIONER OF PATENTS FOR THE TIME BEING.

APPEAL FROM THE SUPREME COURT OF THE DISTRICT OF COLUMBIA.

INDEX.

	Original.	Print.
Bill of complaint	1	1
Subpœna	5	3
Marshal's return	5½	4
Notice of motion to enter default and service of same	6	4
Order for entry of default	6	4
Complainant's proofs	8	5
Exhibits offered	8	5
Exhibit, Patent Office and Appeal Record—Certified copy of entire record in the matter of application of Maurice Gandy for letters patent, December 1, 1877	9	5
Exhibits offered	42	26
Testimony of John Macwatty	42	27
Silas B. Brown	52	33
Exhibit, Bauman Letter—Letter of A. L. Bauman to Ballard & Co., August 17, 1882	54	35
Exhibit, Mercy Letter—Letter of M. Mercy to Ballard & Co., September 28, 1883	55	35
Exhibit, Allen Brothers' Letter—Letter of Allen Bros. to Ballard & Co., December 29, 1882	56	36
Exhibit, Knecht & Brown Letter—Letter of Knecht & Brown to Ballard & Co., April 30, 1883	57	36

JUDD & DETWEILER, PRINTERS, WASHINGTON.

	Original.	Print.
Exhibit, Little & Rowe Letter—Letter of Little & Rowe to Ballard & Co., April 26, 1883	57	36
Exhibit, Winnebago Letter—Letter of Bradner, Smith & Co. to Ballard & Co., September 3, 1883	58	37
Testimony of John Henry Phillips	60	38
Maurice Gandy	66	42
Exhibit, Singer Memorandum—Letter, Singer Manufacturing Co. to Gandy, December 17, 1883	72	46
Testimony of Wm. Benn	86	55
Thos. Pugh Richards	87	56
Robt. Dex Harrison	90	57
Francis Fleming	92	59
Harvey W. Peace	95	61
W. A. D. Bauman	96	62
Clarence Delafield	97	62
Order for hearing in General Term in first instance	104	66
Notice of motion to dismiss, &c.	105	67
Motion to dismiss	106	67
Motion to set aside default	108	68
Amendment to bill	110	68
Motion for leave to amend specification	113	69
Decree	115	70
Appeal and allowance of same	116	71
Clerk's certificate	117	71

1 In the Supreme Court of the District of Columbia, the third day of May, A. D. 1883. In Equity.

Between MAURICE GANDY, Complainant,
and
H. M. TELLER, as Secretary of the Interior, and E. M. MARBLE, as Commissioner of Patents, Defendants.

On bill, under section 4915 of the Revised Statutes, to obtain a patent.

To the supreme court of the District of Columbia, holding an equity court for said District:

Maurice Gandy, the plaintiff herein, states as follows:

I. That he is a citizen of Liverpool, in the county of Lancaster, in that part of the United Kingdom of Great Britain and Ireland called England, and a subject of the Queen of Great Britain, and brings this suit in his own right.

2 II. That the defendants herein are both citizens of the District of Columbia, and that the defendant, H. M. Teller, is sued in this action as Secretary of the Interior, and that the defendant, E. M. Marble, is sued in this action as Commissioner of Patents.

III. And thereupon your orator complains and says that before the first day of December, 1877, he was the first and original inventor of certain improvements in belts or bands for driving machinery, and in the manufacture of the same, not known or used before the invention thereof by your orator, and not, to the best of his knowledge and belief, in public use or on sale in this country before the said first day of December, 1877.

IV. That on the said first day of December, 1877, your orator made and filed in the office of the Commissioner of Patents of the United States, in Washington, in the District of Columbia, an application for letters patent of the United States for said invention.

V. That said application contained a full description and claim of said invention, and was made, executed, and filed in due form of law and according to the rules of practice in the Patent Office in such cases made and provided, and the fees required by law were duly paid thereon, as by said application, or a duly authenticated copy thereof ready in court to be produced, will fully appear.

VI. That thereafter, upon due proceedings being had by the examiners of the Patent Office, according to law and according to the rules and practice of the Patent Office, said application was rejected.

VII. That thereon, in due form of law, an appeal was taken to the then Commissioner of Patents, in person, as provided by the statutes in such cases; and thereon, after hearing and due consideration, the said Commissioner of Patents refused to grant your

3 orator a patent for his said invention, as by said appeal and the Commissioner's decision thereon, dated April 7, 1879, or a duly authenticated copy thereof ready in court to be produced, will fully appear.

VIII. That thereupon, your orator being dissatisfied with said decision, and insisting that his said invention was new, and that he was entitled to a patent for the same under the law, appealed from said decision of the Commissioner of Patents to the supreme court of the District of Columbia, sitting in banc, as provided by law.

IX. That said appeal to said court was taken and pursued in due form of law, and upon hearing and due consideration had, said court, on the 13th day of January, 1880, rendered its decision, refusing your orator a patent for his said invention, as by said appeal and said decision of said court, ready in court to be produced, will fully appear.

X. That said application of your orator was rejected by said examiner in the Patent Office and by said Commissioner of Patents and said supreme court upon the ground that said invention of your orator was not new, and, therefore, not patentable; but your orator nevertheless insists and submits to this honorable court that his said invention was new and patentable within the meaning of the law, at the time of filing his said application as aforesaid, and that he is still entitled to a patent for the same; that the patents and inventions which are said to anticipate your orator's invention, and upon which your orator's application for a patent stands rejected, viz., the English patent to William Edward Newton, dated January 26, 1858; English patent to Charles Stevens, dated April 18, 1861, and the American patent granted to Edward Street, dated April 14, 1874, do not in fact anticipate your orator's invention, as by said patents, or a duly authenticated copy thereof ready in court to be produced, will fully appear, and as your orator is ready to maintain and prove.

4 XI. That said application was in fact unjustly and erroneously rejected, and that your orator is suffering great wrong and injustice as the result of such rejection.

XII. That the said invention is of great public utility and that, notwithstanding such unjust rejection of his said application, he has established in this country the manufacture of his said improved belt or bands for driving machinery; that he has the manufacture of such belts in this country now in successful operation, and has succeeded in introducing said invention in public use.

XIII. That in establishing the manufacture of said belts in this country and in introducing the same in public use here your orator has expended large sums of money, to wit, not less than fifty thousand dollars.

XIV. That your orator has obtained patents for said invention in England, Germany, Austria, Italy, Australia, and in other countries, and that the rights of your orator under his patents in said countries have been upheld and protected.

XV. That now, after the establishment of the manufacture and sale of said invention in this country by your orator, as aforesaid, others seeing the advantages to be derived therefrom, and believing your orator to be unprotected by letters patent for said invention, are also beginning to make and use your orator's invention, to the great injury and damage of your orator.

XVI. Wherefore your orator prays this honorable court to take cognizance of and to consider his said application to letters patent for his said invention, to hear and determine his right to a patent for the same, or such parts thereof as he may be justly entitled to, according to the statutes in such cases made and provided and according to the principles of equity and good conscience, and to order, adjudge, and decree accordingly, and to grant unto your orator such other and further relief as may be warranted by the premises and conformable to equity and justice.

XVII. And may it please your honors to grant unto your orator also a writ of subpœna, issuing out of and under the seal of this honorable court, directed to the said H. M. Teller, as Secretary of the Interior, and to the said E. M. Marble, as Commissioner of Patents, commanding them to appear at a certain time and place in this court to answer the premises, and to stand to and abide such orders and decrees herein as may be consistent with justice and equity, and as may be required of them as such Secretary of the Interior and Commissioner of Patents, according to the statutes in such cases made and provided.

(Signed) MAURICE GANDY.

AMOS BROADNAX,
Solicitor and of Counsel with Complainant.

City of Liverpool, county of Lancaster, in that part of the United Kingdom of Great Britain and Ireland called England, } *ss:*

I, Maurice Gandy, the above-named complainant, do solemnly swear that I have read the foregoing bill by me subscribed and know the contents thereof, and that the facts therein stated upon my personal knowledge are true, and that the facts therein stated upon information and belief I believe to be true.

(Signed) MAURICE GANDY.

Subscribed and sworn to before me this fifth day of March, A. D. 1883.

[SEAL.] JAMES W. ALSOP,
Notary Public, Liverpool.

In the Supreme Court of the District of Columbia. Equity Docket 23.

MAURICE GANDY, Complainant,
against
H. M. TELLER, Sec'y of the Interior, *et al.*, Defendants. } No. 8545.

The President of the United States to H. M. Teller, as Secretary of the Interior, and E. M. Marble, Commissioner of Patents, defendant-:

You are hereby commanded to appear in this court, at its first special term, occurring twenty days after service of this subpœna, and

answer the exigency of the original bill, under pain of attachment and such other process of contempt as the court shall award.

R. J. MEIGS,
Clerk, &c.,
By R. J. MEIGS, JR.,
Ass't Clerk.

Witness D. K. Carter, chief justice.

5½ [Endorsed:] No. 8545. Equity docket 23. S'p'a to ans. Original bill. Maurice Gandy *vs.* Henry M. Teller, as Secretary of the Interior, *et al.* Issued May 3rd, 1883. Returned May 8th, 1883. Served on H. M. Teller, Secretary of the Interior, and E. M. Marble, Commissioner of Patents, May 5, 1883. Clayton McMichael, U. S. marshal.

6 In the Supreme Court of the District of Columbia. In Equity.

Bill filed May 3, 1883.

Between—

MAURICE GANDY, Complainant,
and
H. M. TELLER, as Secretary of the Interior, and E. M. MARBLE, as Commissioner of Patents, Defendants.

On bill under section 4915 of the Revised Statutes to obtain a patent.

To the defendants herein:

Please take notice that on Saturday, the 20th day of October, 1883, at ten o'clock in the forenoon of that day, or as soon thereafter as counsel can be heard, I will move the court for leave to enter your default herein, and thereupon to proceed with the cause *ex parte* to final hearing.

Dated October 19th, 1883.

AMOS BROADNAX,
Complainant's Solicitor.

Due and timely service of the foregoing notice is hereby admitted. October 19th, 1883.

H. M. TELLER,
Secretary of the Interior.
E. M. MARBLE,
Commissioner of Patents.

7 And now, October 20th, 1883, it appearing by the record herein that the processes of the court and a copy of the bill of complaint was duly served upon defendants, and it not appearing that defendants have appeared or made answer to said bill of complaint, it is ordered, upon reading and filing the foregoing notice of motion and admission of service, and upon motion of complainant's solicitor, no one appearing for defendants, that complainant have leave to enter defendants' default and proceed with his cause *ex parte,* and that he have sixty days from the date hereof

to take and put in his proofs, and that he may take and put in such proofs before the clerk of the United States circuit court for the southern district of New York, and also before the United States consul residing at Liverpool, England.

Dated October 20th, 1883.

COX, *Judge.*

8 In the Supreme Court of the District of Columbia. In Equity.

Bill filed the third day of May, A. D. 1883.

Between—

MAURICE GANDY, Complainant,

and

H. M. TELLER, as Secretary of the Interior, and E. M. MARBLE, as Commissioner of Patents, Defendants.

On bill under section 4915 of the Revised Statutes to obtain a patent.

NEW YORK, *October* 29, 1883.

Complainant proceeding *ex parte*, as per order of the court, dated October 20th, 1883.

Present: Amos Broadnax, for complainant; no one appearing for defendants.

Complainant offers in evidence a certified copy of the entire record in the matter of the application of Maurice Gandy for letters patent for improvement in belts or bands for driving machinery, filed December 1, 1877, including the appeal to the board of appeal and the appeal to the Commissioner in person, and also the appeal to the supreme court of the District of Columbia in the matter of said application for said patent, and the same is marked Complainant's Exhibit Patent Office and Appeal Record, 29th October, 1883, T. Griffith (clerk of the United States circuit court for the southern district of New York), Examiner.

9 26 BROAD STREET, NEW YORK, *November* 28, 1877.

DEAR SIR: I inclose with this the application of Maurice Gandy for a patent for improvement in belts, with my check for $15 to pay the first fee thereon.

Very respectfully, AMOS BROADNAX.

Hon. Commissioner of Patents, Washington, D. C.

To the Commissioner of Patents:

Your petitioner, a resident of the borough of Liverpool, in the county of Lancaster, in that part of the United Kingdom of Great Britain and Ireland called England, prays that letters patent may be granted to him for the invention set forth in the annexed specification, and he hereby appoints Amos Broadnax, of 26 Broad street, in the city and State of New York, United States of America, his attorney, with full power of substitution and revocation, to present this application, to make alterations and amendments therein, to

receive the patent, and to transact all business in the Patent Office connected therewith.

MAURICE GANDY.

Witnesses:

FREDERICK JOHN CHEESBROUGH,
JOHN HAMILTON REDMOND,
Both of 15 *Water Street, Liverpool, England.*

To all whom it may concern:

Be it known, that I, Maurice Gandy, of Liverpool, in the county of Lancaster, in that part of the United Kingdom of Great Britain and Ireland called England, have invented certain improvements in belts or bands for driving machinery, of which the following is a full and exact description:

10 My invention relates to manufacturing belts or bands for driving machinery of cotton canvas or duck, "hard woven," either in widths to suit the size of such belt or band, without folding, or in wider widths, folded up, so as to form the necessary thickness or plies. The belt or band can also be made in part folded up and part of separate thicknesses of such "hard woven" cotton canvas or duck. The cotton canvas or duck is put together either by hand or by folders or guiders, and formed into a belt of the desired width and thickness, and then stitched with rows of stitching, such rows of stitching being spaced about half an inch apart the whole width of the belt, the stitching being done by a sewing-machine or otherwise. The belt or band so constructed is then soaked or saturated in oil, such as linseed oil, either boiled or raw, or a mixture of linseed oil with other oils or spirits, such oil or mixture being thinned, if necessary, by heat or spirits to facilitate saturation.

A modification of my invention consists in soaking or saturating with oil, such as boiled linseed oil, the hard woven canvas or duck before it is made up into the belt. The canvas is then made into the belt, the oil squeezed out, by passing through rolls or other pressure, and stitched as before described.

After soaking or saturating the belt or band, or the canvas or duck, before forming into the belt or band, I pass it through the rolls to squeeze out the superfluous oil.

The belts or bands are then racked to dry and afterwards painted, or they may be used without being painted, as preferred by the user

If the oiling is effected on the canvas or duck before forming such canvas or duck into the belt, I, by preference, dry it before stitching, and after drying it is stitched and painted.

I would remark that I am perfectly aware that belts or bands of cotton canvas or duck are not new, as such have been made previous to my invention by folding and sewing, the sewing-machine being used for such sewing or stitching. I myself have

11 manufactured and sold belts so made for over four years. I am also aware that belts or bands have been made by weaving cotton into the form and thickness of such belt or band, and afterwards saturating such belt or band with oil, such as boiled lin-

seed oil. I myself have manufactured and sold such belts for over three years. The objection to the folded belt is that the same is not durable, having been made of soft woven canvas or duck, and the oil is not interlarded between the folds of the belt, and is not intermingled with the fibre of the material, and the belt is detrimentally affected by variations in the atmosphere. The objection to the woven and oil-saturated cotton belts consists in their excessive elasticity and their being of maximum durability, for when the selvage is cut the whole belt is apt to give out.

Having thus described the nature and construction of my invention, what I desire to secure by letters patent is—

As a new article of manufacture, a belt or band for driving machinery, constructed of hard woven cotton, canvas, or duck, stitched, and saturated and interlarded with oil, such as linseed oil, or any combination thereof, as herein described or set forth.

In witness whereof I, the said Maurice Gandy, have hereunto set my hand and seal this 8th day of November, in the year of our Lord one thousand eight hundred and seventy-seven.

[L. S.] MAURICE GANDY.

Witnesses:

FREDERICK JOHN CHEESBROUGH,
JOHN HAMILTON REDMOND,
Both of 15 *Water Street, Liverpool, England.*

I, the undersigned, consul of the United States of America for the port of Liverpool and its dependencies, do certify and make known to whom these presents shall come that Edward Whitley, before whom the annexed deposition of Maurice Gandy has been
12 made, and whose true signature and notarial seal are subscribed and affixed thereto, is a notary public, duly authorized, admitted, and sworn, residing in Liverpool, to whose acts as such full faith and credit are due.

Given under my hand and seal of office, at Liverpool, this eighth day of November, and year of our Lord one thousand eight hundred and seventy-seven.

[L. S.] LUCIUS FAIRCHILD,
U. S. Consul.

Borough of Liverpool, in the county of Lancaster, in that part of the United Kingdom of Great Britain and Ireland called England, } *ss:*

Maurice Gandy, the above-named petitioner, being duly sworn, deposes and says that he verily believes himself to be the original and first inventor of the improvements in belts or bands for driving machinery described and claimed in the foregoing specification, and that he does not know and does not believe the same was ever before known or used before the invention thereof by this deponent, and that, according to the best of his knowledge and belief, the same has not been in public use in the United States for more than two years prior to the application in this country, and that he has ob-

tained letters patent for Great Britain and Ireland, the Channel Islands, and Isle of Man, bearing date the ninth day of May, one thousand eight hundred and seventy-seven, and numbered 1809, and that he is a subject of the Queen of Great Britain.

MAURICE GANDY.

Sworn to and subscribed before me this 8th day of November, 1877.

[L. S.] ED. WHITLEY,
Notary Public, Liverpool.

13 Room No. 95.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *Dec.* 12, 1877.

Maurice Gandy, care Amos Broadnax, 26 Broad street, New York city:

Belts or bands, Dec. 1, 1877. $\frac{1062}{84}$

The alleged invention presented in this application is substantially anticipated in English patents No. 140, of 1858; No. 949, of 1861.

The patent is refused.

J. B. CHAPMAN, *Examiner.*

IN THE UNITED STATES PATENT OFFICE.

In the Matter of the Application of MAURICE GANDY for a new article of manufacture, consisting of a belt, filed December 1, 1877.

The above-entitled application is hereby amended by striking out the claim making part of this specification and by substituting the following therefor, viz:

The new article of manufacture consisting of a belt composed of two or more plies of "hard-woven" canvas or duck saturated with oil and united with rows of stitching.

Dated Washington, D. C., March 1, 1878.

AMOS BROADNAX, *Solicitor.*

Recommended for the purpose set forth in the accompanying paper.

14 Room 95.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *March* 4, 1878.

$\frac{1062}{84}$

Maurice Gandy, care Amos Broadnax, 26 Broad street, N. Y. city:

In further consideration of this matter, in connection with amendment of the 1st instant, applicant is advised that in view of the state

of the art, as indicated by reference cited in former office letter, the subject-matter presented in this application does not involve patentable novelty. A patent is therefore refused.

J. P. CHAPMAN, *Examiner.*

IN THE UNITED STATES PATENT OFFICE.

In the Matter of the Application of MAURICE GANDY for improvements in belts, filed December 1, 1878.

Before an appeal can be taken to the board of examiners-in-chief in the above-entitled application the claim dated March 1, 1878, must be rejected a second time. To that end the application is again respectfully submitted for the further action of the examiner.

Very respectfully, AMOS BROADNAX.

Dated June 1, 1878.

To the honorable Commissioner of Patents, Washington, D. C.

15 Room No. 95.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *June* 5, 1878.

Maurice Gandy, care Amos Broadnax, 26 Broad street, N. Y. city.

December 1, 1877. $\frac{1062}{84}$

In reply to attorney's letter of the 4th instant he is advised that the action communicated in former letter is believed to have been well taken, and this application may be regarded as twice rejected.

J. P. CHAPMAN, *Examiner.*

26 BROAD STREET, N. Y., *June* 8, 1878.

DEAR SIR: I enclose appeal in case of Maurice Gandy, with check for $10 fee thereon.

Very respectfully, AMOS BROADNAX.

Honorable Commissioner of Patents, Washington, D. C.

IN THE UNITED STATES PATENT OFFICE.

In the Matter of the Application of MAURICE GANDY for a patent for improvement in belts or bands, filed Dec. 1, 1877.

An appeal is hereby taken in the above-entitled application from the decision of the principal examiner in charge of the same.

16 The invention is of a new article of manufacture described in the claim, which is as follows:

"The new article of manufacture consisting of a belt composed of two or more plies of hard-woven cotton canvas or duck saturated with oil and united with rows of stitching."

This claim was rejected on March 4, 1878, and again on June 5, 1878. This appeal is taken for the reason that the patents and ref-

erence given by the examiner in charge as the reasons for rejecting the application do not show or describe the manufacture claimed by the applicant. In support of this appeal I cannot do better than submit the following statement sent by the inventor himself, a citizen of Liverpool. The English patents to Stevens and Newton, respectively, are those referred to by the examiner as his reasons for rejecting the application.

"Steven's patent No. 949, A. D. 1861: This belt or band is in no way like my belt as at present made, but is like what I formerly made and found so unsatisfactory, as by weaving the belt in one operation you cannot make it so that it will not stretch or give out when working. This was the disadvantage I proved in those I wove; hence I abandoned it for the present mode. (See sample of my woven belt, saturated.) Stevens merely claims the method of weaving. (See specification.")

"Newton's patent No. 140, A. D. 1858: This product is not like mine, as he relies on the cementing together by means of a compound, whilst by my method I stitch them firmly together by machine, and merely saturate the duck with oil to guard against effect of atmospheric change. Then Newton does not show how his belts would act when the cement gave out, nor does he make any provision against their stretching; Now, stretching is the great drawback to all kinds of belts, as it necessitates stopping to take up, which means great loss to whoever uses belts liable to stretch."

"Now, it is well known that all belts made of ordinary duck
17 or canvas keep on stretching all the time they are running; hence many failures in the manufacture of this kind of belt. No one but myself has ever made belts of cotton duck that were satisfactory, and I only found out how to do it after a long series of experiments in my own works, thus proving by actual use how to make them so they would give satisfaction; and for my invention I claim a novelty entitling me to a patent, my belts being different to any others yet made, inasmuch as they are made of especially hard-woven duck, and not duck of ordinary use in belt-making. They are saturated with oil as an antiseptic, not to cement them together, as it has been found that no method of cementing, whether by Newton's process, by india-rubber, by marine glue, or any other yet known process, has proved effective. They all, after having been a short time at work, separate in the folds and plies and go to pieces, whilst by my process of close stitching the folds or plies are kept together as long as the belt lasts, and being saturated by oil they are rendered effective against the atmospheric changes; and, lastly, by being made of special hard-woven duck, they do not stretch like all the others have done when in actual work. In proof of the utility and durability of my patent belts, I have only to point to the fact that I have a large number of mills using nothing else. Newton mentions the putting in of one seam only at one edge of the belt by sewing-machine, so as to make the different folds or plies form so many tubes to enable him to force the cement between the folds to cement them together. I make stitching by machine the means whereby I fasten the several plies together instead of cementing, as

cementing has proved itself a failure in belt-making, whilst my stitching proves itself to be satisfactory. On these grounds I claim a patent for my invention."

I respectfully submit that the manufacture is new as against the reference, and that applicant is entitled to a patent.

Very respectfully, AMOS BROADNAX.

Dated June 8, 1878.

18 Room No. 95.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *June* 12, 1878.

Maurice Gandy, care Amos Broadnax, 26 Broad street, New York city: $\frac{1,062}{84}$

In further treatment of this case before an answer to appeal is submitted to the board of examiners-in-chief attention is called to Street of April 14, 1874, No. 149,805, belting, which shows a belt composed of several layers of textile fabric united by several longitudinal rows of stitching. This reference is cited to show more fully the state of this art. Answer to appeal will be delayed for ten days to give the applicant an opportunity to amend his appeal if he shall so desire in view of this reference, which will be used by the examiner in his answer.

J. P. CHAPMAN, *Examiner.*

IN THE UNITED STATES PATENT OFFICE.

In the Matter of the Application of MAURICE GANDY for a patent for an improvement in belts or bands, filed Dec. 1, 1877.

Office letter of the 12th inst. came duly to hand. The patent to Street referred to in that letter should have been given to me before the appeal was taken. I do not think the patent to Street describes or shows the manufacture claimed by the applicant, and it strikes me as exceedingly improper for the appeal board to consider it or for the examiner to refer to it in his arguments against the appeal, and the office will consider this my protest against any such argument; and if such argument be presented the appeal board will please consider this my motion to strike it out.

Very respectfully, AMOS BROADNAX, *Solicitor.*

Dated June 15, 1878.

19 In the Matter of the Application of MAURICE GANDY for a patent for belts or bands, filed December 1, 1877.

On appeal to the honorable examiners-in-chief.

Examiner's Answer.

In this case the alleged invention consists in saturating the fabric of which the belt is composed with oil, and claimed as follows:

"The new article of manufacture consisting of a belt composed of two or more plies of hard-woven cotton canvas or duck saturated with oil and united by rows of stitching."

It will be observed that stress is laid upon the character of canvas or duck employed, and that such fabric is saturated with oil. The uniting by rows of stitching is acknowledged by applicant in his specification to be old.

It is only necessary, therefore, to show that hard-woven canvas has been employed for the purpose claimed by this applicant, thus acknowledging the quality of fabric as a legitimate element in the matter of alleged novelty (which is questionable), as the quality or character of fabric employed must call for the exercise of judgment rather than inventive genius, but inasmuch as hard-woven fabric has been before employed for belting this matter has no especial significance.

In rejecting this case English patents No. 140 of 1858 and 949 of 1861 have been cited.

The former describes a belt formed of several layers of canvas saturated with linseed oil.

The latter describes a belt composed of fabric which may be woven of cotton and thread, thus producing hard-woven fabric; this fabric to be saturated with oil or other fatty substance to increase its durability. Attention was also called to Street, of April 14, 1874, No. 149,895, showing a canvas belt of several layers united by several rows of stitching, which mode of uniting is also referred to in English patent of 1868, just referred to.

The state of the art as shown by the references which have been cited appears to preclude all legitimate claims for protection for the alleged new article of manufacture.

Respectfully submitted,

J. P. CHAPMAN, *Examiner.*

Dated June 19, 1878.

Respectfully submitted with remark that merely substituting the word "cotton" cannot, in the opinion of the examiner, change the status of the case, inasmuch as all kinds of fibrous material have been employed in the manufacture of belting.

Dec. 16, 1878.

J. P. CHAPMAN, *Examiner.*

Room No. 5.

DEPARTMENT OF INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *July* 16, 1878.

Maurice Gandy, care Amos Broadnax, 26 Broad St., N. Y. city.

SIR: Your application for a patent for improvement in belts or bands, filed December 1, 1877, has been considered by the examiners-in-chief upon appeal, and they affirm the decision of the examiner.

Copies of the decision will be furnished at the usual rates.

Respectfully, etc.,

——— ———,
Commissioner.

21 No. 4855.

U. S. PATENT OFFICE, *July 16th*, 1878.

Application of MAURICE GANDY for a patent for belts or bands, filed December 1, 1877.

Before the examiner-in-chief upon appeal.

There is nothing new in this case. Canvas belts are old, longitudinally stitched canvas belts are old, and oiled canvas belts are old. The aggregation of these elements to produce any single result might be sufficient to sustain a patent, but the stitching gives its merit to the belt, whether it is oiled or not, and the oil protects it against the elements in the same way, whether it is stitched or not. Moreover, the patent of Street includes stitched canvas belts treated with cement, or rubber solution, which operates, incidentally at least, as a protection to the fabric. Examiner's decision refusing a patent must be affirmed.

F. D. STOCKBRIDGE,
H. H. BATES,
Examiners-in-Chief.

IN THE UNITED STATES PATENT OFFICE.

In the Matter of the Application of MAURICE GANDY for a patent for a new article of manufacture, consisting of a hard-woven cloth belt, filed December 1, 1877.

Motion.

The applicant in the above-entitled case, by his solicitor, asks leave to amend his amended claim, filed March 1, 1878, by inserting the word "cotton" after the words "hard woven" and before the word "canvas," and upon the claim as thus amended applicant asks leave to have the case reconsidered by the examiner.

The applicant makes this motion for the purpose of getting his case properly before the Commissioner upon appeal, in case
22 the examiner thinks proper to reject it again, notwithstanding the amendment.

The claim, as it has been considered, does not define the invention exactly as it is.

The invention, as it appears in the original specification, is limited to "hard-woven cotton canvas or duck," but the word cotton was inadvertently omitted in the amended claim filed March 1, 1878.

In view of the fact that the application is for a new article of manufacture, made of cotton, the omission of the word "cotton" in the claim is a very important one.

The mistake is mine, but I did not notice it until my attention was called to it by the inventor after the decision of the appeal board. I trust the office will admit amendment and consider the claim as amended.

Respectfully submitted,

AMOS BROADNAX, *Attorney.*

Dec. 3, 1878.

Recommended for the purpose set forth.

V. D. STOCKBRIDGE,
Examiner-in-Chief.

Room 95.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *Dec.* 9, 1878.

Mannin or Maurice Gandy or Gundy, care Amos Broadnax, 26 Broad St., N. Y. city.

Dec. 1, 1877. $\frac{1062}{84}$

Applicant is advised that the amendment filed the fourth instant has has been entered, and no reason is found for changing the action communicated in office letter of June 5, 1878, from examiner's room No. 95. The application is again in condition for appeal. It is proper to call attention to discrepancy in signatures appear-
23 ing in connection with the specification, oath, etc., as Mannin—Maurice, also as Gandy and Gundy.

J. P. CHAPMAN, *Examiner.*

IN THE UNITED STATES PATENT OFFICE.

In the Matter of the Application of MAURICE GANDY for a patent for a new article of manufacture, consisting of a hard-woven cotton belt, filed December 1, 1877.

This application was before the appeal board as No. 4855, and the decision of the examiner refusing a patent was affirmed July 16, 1878.

On the 4th instant a motion was filed for leave to amend by inserting the word "cotton" after the word "hard-woven." Leave was granted to make the amendment, but the examiner sees no reason to alter his previous action upon the case, as appears by his letter of the 9th instant.

This is, therefore, a motion for leave to reargue the case before the appeal board before going upon appeal to the Commissioner.

The office will please notify me of its decision upon this motion and when I can be heard.

Dated December 11, 1878.

Very respectfully, AMOS BROADNAX, *Attorney.*

U. S. PATENT OFFICE,
WASHINGTON, D. C., *Dec.* 16, 1878.

M. Gandy, care Amos Broadnax, No. 26 Broad St., N. Y. city.

SIR: The appeal from the decision of the examiner in the case of Maurice Gandy—belts or bands (motion for rehear-
24 ing)—will be heard by the examiners-in-chief January 5, 1879.

If appellant, or his attorney, shall not appear at that time the hearing will be regarded as waived, and the case will be decided upon the record.

Respectfully, etc.,

——— ———,
Commissioner of Patents.

IN THE UNITED STATES PATENT OFFICE.

In the Matter of the Application of MAURICE GANDY for a patent for [an] improved article of manufacture, consisting of hard-woven cotton belt or band, filed December 1, 1877.

Upon rehearing by the honorable board of appeal.

The reason of appeal upon which this case was previously presented to the board is as follows:

"This appeal is taken for the reason that the patents and references given by the examiner in charge as a reason for rejecting the application do not show or describe the manufacture claimed by the applicant."

The claim was as follows:

"The new article of manufacture consisting of a belt composed of two or more plies of hard-woven canvas or duck saturated with oil, and united with rows of stitching."

Since the matter was considered by the board leave was granted to amend the claim by inserting the word "cotton" before the word "canvas," making the claim read "hard-woven cotton canvas."

As thus amended the claim was finally rejected December 19, 1878, upon the references before cited.

The decision of this board in this case was rendered July 16, 1878, and is as follows:

"There is nothing new in this case. Canvas belts are old; longitudinally stretched canvas belts are old, and oiled canvas belts are old. The aggregation of these elements to produce any single result might be sufficient to sustain a patent, but the stretching gives its merit to the belt, whether it is oiled or not, and the oil protects it against the elements in the same way, whether it be stretched or not. Moreover, the patent of Street includes stretched canvas belts treated with cement or rubber solution, which operates, incidentally at least, as a protection to the fabric."

In this decision I cannot escape the conclusion that it was rendered under a misapprehension of the case, which was one reason for asking a rehearing of it. The belt of this invention is not stretched at all.

The great advantage of this invention is that the belt produced will not stretch.

The principal object of the invention is to produce a belt that will not stretch.

All canvas belts produced and tried previous to this belt of the applicant have been discarded because they stretched, and continued to stretch, tighten them as often as you would. The applicant is a manufacturer of canvas belts, and the success of his business depends upon that essential fact that he produces a canvas belt that will not stretch. The stretching of the belt is no part of the manufacturing of applicant's belt, and he does not pretend to produce a stretched belt, stitched, oiled, or otherwise. On the contrary, the belt of the applicant is one that, in a practical sense at least, will not stretch. I do not, of course, mean to assert that the belt is proof ab-

solutely against stretching, but for all practical purposes the belt is unobjectionable on the ground of stretching, and it is just there where this belt is an improvement upon all other canvas belts, and this feature is due to the fact that the body of the belt is made of hard-woven cotton duck. The invention for which the applicant claims a patent is a belt composed of two or more plies of hard-woven cotton canvas saturated with oil and united with rows of stitching. Is this invention new in a patentable sense? I insist that it is, and I submit with great confidence that not one of the patents referred to by the examiner describes or shows a belt like that of the applicant.

There is no belt made of hard-woven cotton canvas, folded, stitched, and oiled, shown or described in any of them. No one
26 can look at the specimens of belt filed with this case and say that the process of making belts described in any of the patents referred to would produce an article like this specimen.

The difference between the belt of Stevens and that of the applicant, and between the belt of Newton and that of the applicant, was fully pointed out by me when the case was previously before the board, and I cannot add anything now to make the distinction more apparent.

The belt of Street is nearer like that of the applicant than that of either Stevens or Newton, and the belt of Street, as an article of manufacture, irrespective of the manner of making it, is wholly unlike that of the applicant.

The specification of Street does not describe a belt that would be of any value if the india-rubber and its vulcanization were omitted. The inventor, Street, relies upon the india-rubber and its vulcanization to make his belt.

"The woven material" is a mere stuffing of the rubber; a kind of filling or vehicle to carry the rubber. There is nothing in the specification from which it appears that the belt is made of cotton canvas or any canvas or fibrous cloth of any kind.

The "woven material" might be wire, whalebone, ratan, or leather and fall within the scope of the patent. But what matter it how it is made or what it is made of? If the thing itself after it is made—if the article is substantially different from that of the applicant it is no bar to his patent. There is no rule of law or practice better established than that a patent for a new or improved article must be for the article or thing itself, irrespective of the manner in which it is made. The Patent Office insists upon the rule most pertinaciously. The office will not consider a claim for an article of manufacture that is not limited to the thing without reference to the process of making it. But the office violates its own rule in this case, as well as the rule of law in such cases. The office does not show any belt like this of the applicant, nor does it show any process which would result in producing his belt. Let us assume
27 that we are experts in the manufacture of belts, and that the specifications of Stevens, Newton, and Street were put in our hands and directions given us to make a belt after the descriptions given in them respectively. Would we in executing the order pro-

duce a belt like that of the applicant? I submit that we would not, and I submit that the above test is the only safe one. If in following the specification of the patentee we do not produce the article the patent should not debar the applicant of his patent.

There is absolutely nothing in the patent of Newton to show that he ever produced a belt by his process. He merely says that his fabric saturating or coating may be used to make belts, and tells how it may be applied to make belts. He does not show or describe a belt, but only a process which may be used to make a belt; which process would no more produce a belt like that of the applicant than it would a pair of boots. Newton says: "The fabric which forms the subject of the invention described in his patent is composed of cotton or other fibrous substance, either woven into cloth or in an unwoven state, saturated or coated with a compound of linseed oil and burnt umber."

That is the invention described and claimed by Newton's patent, and which he says may be used to make soles for boots and shoes, covering for trunks, and as a substitute for canvas and harness leather, belts, etc. Now, if this were an application for a patent for a new article of manufacture consisting of a novel boot or shoe, or set of harness, the reference would be just as pertinent as it is in this case. Stevens' patent describes and claims a process of weaving a fabric for belts, but I submit it does not describe a belt composed of hard-woven cotton canvas, folded, saturated, and stitched like that of the applicant.

The belt of Street is the ordinary vulcanized india-rubber belt, strengthened by a woven fabric. The belt, as a belt, is as unlike the belt of the applicant as it can be made. Two belts could not be more unlike.

All that is necessary to authorize a patent for an article of manufacture is that the article, as an article, be new and distinguishable from other articles of the same class.

28 This belt is new as a belt against anything referred to by the examiner, and that it is distinguishable from all other belts of which we have any knowledge there can be no doubt.

See cases of Charles A. Moore, Commissioner's Decisions 1871, page 249.

George Lupton, Commissioner's Decisions 1874, page 40.

And Merrill *vs.* Geomons, Commissioner's Decisions and U. S. C. in Patent Cases 1877, page 279.

Respectfully submitted for reconsideration.

Dated January 3, 1879.

AMOS BROADNAX, *Solicitor.*

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *Jan.* 22, 1879.

Maurice Gandy, care of Amos Broadnax, 26 Broad street, N. Y. city.

SIR: Your application for a patent for improvement in belts or bands, filed Dec. 1, 1877, has been considered by the examiners-in-chief upon appeal, and they affirm the decision of the examiner.

Copies of the decisions will be furnished at the usual rates.

Very respectfully. H. E. PAYNE,
Commissioner of Patents.

No. 4855.

U. S. PATENT OFFICE, *January* 22, 1879.

29 Application of MAURICE GANDY for a patent for an improvement in belts or bands, filed December 1, 1877.

Before the examiner-in-chief, on appeal.

This case comes before us a second time on an amended claim. The amendment does not change the scope or character of the issue from what has already been decided, and we can only affirm the examiner's decision, referring to our former decision for reasons for our present conclusion.

Applicant has manifestly mistaken the word "stitched," as used in our decision, for "stretched."

The decision is affirmed.

V. D. STOCKBRIDGE,
R. L. B. CLARKE,
H. H. BATES,
Examiners-in-Chief.

57 BROADWAY, N. Y., *February* 1, 1879.

DEAR SIR: I inclose check for $20, the fee on appeal in the matter of the application of Maurice Gandy, from the examiners-in-chief to the Commissioner in person.

Very respectfully, AMOS BROADNAX.

Hon. Commissioner of Patents, Washington, D. C.

To the United States Patent Office:

In the Matter of the Application for a patent for improvement in belts and bands, filed December 1st, 1877.

Appeal from examiners-in-chief to Commissioner in person.

In the above-entitled matter an appeal is taken from the decision of the examiners-in-chief to the Commissioner in person.

The following reasons of appeal are assigned:

30 That patents and reference given by the examiner in charge of the application as a reason for rejecting it do not show or describe the improved manufacture claimed by the applicant.

Respectfully submitted.

Dated February 1, 1879.

AMOS BROADNAX, *Solicitor.*

XCVI. NEW YORK, *March* XVIII.

B. M. Plummer, Ebbitt House, Washington, D. C.:

You are authorized to appear *in re* Maurice Gandy application.

AMOS BROADNAX.

UNITED STATES PATENT OFFICE.

MAURICE GANDY application.

Appeal from the board of examiners-in-chief.

This case is remanded to the primary examiner for re-examination on the new Exhibits Nos. 1, 2, 3, and 4.

March 17, 1879.

H. E. PAINE,
Com'r of Patents.

Room 95.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *March* 18, 1879.

Maurice Gandy, care B. M. Plummer, Ebbitt House, Washington, D. C.:

Belting. Dec. 1, 1877. $\frac{196}{84}$

This application, having been remanded for furthier examination by official order of the 17th inst., has received careful consid-
31 eration, and no good reason has been found for changing the action communicated in former letter. A patent is again refused in view of the state of the art shown by references which have been cited.

J. P. CHAPMAN, *Examiner.*

Hon. Commissioner of Patents:

I hereby request that the application of Maurice Gandy for "belting," filed December 1 1877, may be reconsidered by the board of examiners-in-chief, in view of the exhibits and arguments filed the 17th inst., and which have been considered by the examiner by order of the Commissioner of Patents.

It is respectfully urged that the applicant has produced an article recognized by the trade as an improvement upon anything known prior to applicant's invention, and which is believed to possess such merit as entitles him to a patent. The case is submitted upon the record, and an early consideration is requested, in view of the various delays already encountered.

Respectfully, etc.,

AMOS BROADNAX,
Att'y for Maurice Gandy.
Per B. M. PLUMMER.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *March* 21, 1879.

Maurice Gandy, care Amos Broadnax, 26 Broad street, New York city.

SIR: Your application for a patent for an improvement in belts or bands has been considered by the examiners-in-chief upon appeal, and they affirm the decision of the examiner.

32 Copies of the decision will be furnished at the usual rates.

Very respectfully,

H. E. PAINE,
Commissioner of Patents.

No. 4855.

U. S. PATENT OFFICE, *March* 21, 1879.

Before the examiners-in-chief, on appeal.

Application of MAURICE GANDY for a patent for an improvement in belts or bands.

This case comes again before us with exhibits, which show, in material form, what was acknowledged as the state of the art in the original specification. These exhibits and the admissions in the specification fairly and fully disclose the state of the art as found by the examiner. The distinction which can be made between the product of applicant and that which preceded it is that it is composed of hard instead of loose woven fabric. A belt which will not stretch is due to the substitution of hard-woven material. The belt, as a whole, as made by applicant, does not stretch, nor is it affected by thermometric or hygrometric changes. The latter qualities are due to the treatment with the oil or paint, which treatment, however, is admitted to be an old practice. Notwithstanding there is a distinction in the claim and a difference in the resultant product made by applicant from anything which preceded it, and which is more clearly brought to our attention at this time than heretofore, we again affirm the examiner's decision.

V. D. STOCKBRIDGE,
R. L. B. CLARKE,
H. H. BATES,
Examiners-in-Chief.

33 The "distinction" is without a difference in a patentable sense, being entirely due to the superior fabric selected, and which is not of the applicant's invention and requires no invention in its substitution.

H. H. BATES,
Examiner-in-Chief.

IN THE UNITED STATES PATENT OFFICE.

In the Matter of the Application of MAURICE GANDY for a patent for an improved belt, filed December 1, 1877.

Upon appeal to the Commissioner in person.

The claim of the applicant in this case is as follows:

"The new article of manufacture consisting of a belt composed of two or more plies of hard-woven cotton canvas or duck, saturated with oil, and united with rows of stitching."

The reason of appeal is as follows:

For that the patents and reference given by the examiner in charge of the application as a reason for rejecting it do not show or describe the improved manufacture claimed by the applicant.

This matter was fully argued before your honor orally on March 22, 1879, at which time I obtained leave to file a short brief in writing calling your honor's attention to the salient points in the case, and in this connection I beg leave to request your honor's consideration of the arguments I have heretofore filed in this case, the first of which is dated June 8, 1878, and the second January 3, 1879. In these arguments the cause is fully presented.

Your honor will observe that the claim is limited, a belt made of hard-woven cotton canvas, folded, oiled, and stitched together.

In my argument dated June 8, 1878, it is stated as a part of the history of the invention that the inventor had previously made belts of soft-woven cotton canvas, and found them so defective as
to be of no value; that, after numberless experiments, he
34 found success in the use of a canvas woven especially hard
for the purpose of his belts, and he therefore limits his claim to a belt made of hard-woven cotton canvas, because a belt made of soft-woven cotton canvas is of no value. A belt made of soft-woven cotton canvas is as much the invention of the applicant as a belt made of hard-woven cotton canvas, but the claim is limited to the latter, because the former has no value. The difference between a belt made of hard-woven cotton canvas and one made of soft-woven cotton canvas is the difference between success and failure, and shows in a striking manner how small a change in a manufacture will yield the desired end—a circumstance that ought to have great weight in considering cases of this kind. The fact that the applicant presents to the office a specimen of belt made of soft-woven cotton canvas, and accompanied it with a statement that he has been in the habit of making such a belt, and that it is of no value, is no lawful ground for rejecting his application, because it does not appear that such a belt has ever been patented or described in any printed publication. The fact that the inventor made and used the invention abroad does not stop him from getting a patent here. See sec. 4923, R. S.

To reject this man's application upon a worthless belt which he himself made, used, and abandoned in his effort to obtain a thoroughly good one is, I submit, unjust to the last degree.

The simple question as raised by the reason of appeal is, Do the patents referred to by the examiner show the article as an article distinguishable from all others claimed by the applicant? This question I have fully considered in the arguments to which I have called your honor's attention, and to which I can add nothing but words.

In conclusion, I beg leave to call your honor's attention to the following cases:

Charles A. Moore, Com. decis., 1871, p. 249; George Lupton, Com. decis., 1874, p. 40.

Respectfully submitted,

AMOS BROADNAX, *Attorney.*

Dated March 27, 1879.

35 U. S. PATENT OFFICE.

Ex Parte MAURICE GANDY.

Appeal from the board of examiners-in-chief.

The claim of the applicant is for—

"The new article of manufacture, consisting of a belt composed of two or more plies of hard-woven cotton canvas or duck, saturated with oil, and united with rows of stitching."

The main point of excellence in the applicant's belt is alleged to be found in the use of the "hard-woven" cotton canvas or duck. In this particular, and in all others, the sample presented is of the very best quality, but I do not think it is patentable, in view of the state of the art as shown by the references cited by the primary examiner. The incorporation of the hard-woven cotton canvas or duck into the belt does not seem to me to involve sufficient invention to sustain a patent.

The decision of the board of examiners-in-chief is affirmed.

April 7, 1879.

H. E. PAINE,
Commissioner of Patents.

36 Room No. 4.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *April* 9, 1879.

In the Matter of the Application of MAURICE GANDY. "Belt."

On appeal to the commissioners.

You are informed that the decision of the examiners-in-chief is affirmed.

Respectfully,

——— ———,
For Commissioner.

Maurice Gandy, care Amos Broadnax, New York city.

Notice.

To the Commissioner of Patents:

Maurice Gandy, of Liverpool, in the county of Lancaster, in that part of the United Kingdom of Great Britain and Ireland called England, hereby gives notice that he has appealed from your decision, rendered April 7th, 1879, rejecting his application for a patent for improvements in belts or bands for driving machinery, and of this you are respectfully requested to take notice.

And the said Maurice Gandy assigns the following reasons for appealing from the said decision of the Commissioner of Patents—that is to say, because the Commissioner decided that the said invention is not patenable, in view of the state of the art as shown by the references cited by the primary examiner. Whereas the applicant

insists, in view of the state of the art, that the article of manufacture sought to be patented has sufficient novelty and utility
37 to support a patent under the law, and that he is entitled to a patent for the same.

Whereupon he brings this appeal and prays the court to hear and determine this issue.

Dated Sept. 17, 1879.

MAURICE GANDY,
By AMOS BROADNAX,
Attorney-in-Fact.

In the Supreme Court of the District of Columbia. January 30, 1880.

In the Matter of the Application of MAURICE GANDY, of Liverpool, England, for a Patent for Improvement in Belts & Bands, filed December 1, 1877. } Patent Appeals. No. 53.

This appeal having been heard upon the record from the Patent Office, and having been argued by counsel for the petitioner and for the Commissioner of Patents, it is thereupon ordered and adjudged that the petition of the said Maurice Gandy be dismissed, and that the clerk of this court transmit to the Commissioner of Patents a copy of this decree duly authenticated.

I certify that the foregoing is a true copy of the decree of the supreme court of the District of Columbia in the above-entitled appeal.

Witness my hand and the seal of said court the day and year aforesaid.

[L. S.] R. J. MEIGS, *Clerk.*

1877 $1\frac{0}{84}\frac{6}{2}$

No.

Maurice Gandy,
Of Liverpool,
County of Lancaster,
of England.

Belts or bands for driving.

Machinery.

Rec'd Dec. 1, 1877.
38 Petition " "
Affidavit " "
Specification " "
Drawing, } Specimens.
Model, }
Cert. dep.
Cash, $15.
Add'l fee cert.
" " cash.
Examined.
2d issue.

3d patented. 187
Circular.
B. M. Plummer,
Assoc. Att'y,
Ebbitt House,
Wash'n, D. C.

Amos Broadnax,
26 Broad St.,
N. Y. city.

Appeal to 1879, the Supreme Court, D. C.

No. 65
Maurice Gandy,
Of Liverpool,
County of Lancaster,
England.
Belts or Bands for driving machinery.
Rec'd Oct. 10, 1879.
Petition " "
Affidavit.
Specification.
Drawing.
Model.
Cert. dep.
Cash.
Add'l fee cert.
" " cash.
Examined.
Issue.
Patented. 187
Circular.

AMOS BROADNAX,
New York city.

39 1877.

Contents.

Application papers.
1. 1, Dec. 12, 1877.
2. Amd't, M'ch 1, '78.
3. 1, M'ch 4, '78.
4. Att'y's letter, June 4, '78.
5. 2, June 5, "
6. 2, " 12, "
7. Att'y's letter, June 17, '78.
8. Answer to appeal, June 18, '78.
9. Rejection affirmed on appeal
10. to board, July 16, 1878.
11. Amd't Dec. 4, '78.
12. 1, Dec. 9.
13. R. submitted to board, Dec. 16, 1878.
14. Ex'r decision reaffirmed July 22, '79.
15. 1, M'ch 18, 1879.

16. Ex'r decision affirmed Apr. 7, '79,
17. by Commissioner.
18. Decision of Com. affirmed by court, Jan'y 30, 1880.

Title.

Improvement in

1879.
Contents.

Application papers.
1. The decision of tho Com-
2. missioner is affirmed
3. Jan'y 30, '80.
4. Notice sent Feb'y 2, "

Title.

Improvement in
Board of Appeal,
U. S. Patent Office,
Jan. 19, 1878,

1878.
Appeal
to the
Examiner-in-chief.

645
111

No. 4855, B.

40 Maurice Gandy.

Of
County of
State of

Belts or bands.

Rec'd,
Petition
Cert. dep.
1 cash, $10.

June 10, 1878.

June 10, 1878.
AMOS BROADNAX,
26 Broad St., N. Y. city.

1878.

Contents.

Application papers.
1. Reasons of appeal.
2. Examiner's answer.
3. Examiner's decision is
4. affirmed July 16, 1878.
5. Notice sent July 16, 1878.
6. Resubmitted Dec. 16, "
7. Hearing Jan. 5, 1879.
8. Examiner' decision is
9. affirmed Jan. 22, 1879.
10. Notice sent Jan. 22, 1879.
11. Examiner's decision is
12. affirmed Mar. 21, 1879.
13. Notice sent Mar. 21, 1879.

Title.

Ex'd, M. Tuck. Improvement in belts or bands.
J. A. W.

1879.
Appeal
to the
Commissioner of Patents.

No. 65.

41 Maurice Gandy,

Of
County of
State of

Belts and bands.

Rec'd Feb'y 3, 1879.
Petition "
Cert. dep.
1. Cash, $20. Feb'y 3, 1879.
2. Circular.

AMOS BROADNAX,
57 Broadway, New York city.

1879.

Contents.

Application papers.

1. Hearing March 17th, '79.
2. Notice
3.
4. The decision of the
5. examiners-in-chief
6. is affirmed
7. April 7th, '79.
8. Notice sent " 9th, "
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.

Ex'd, E. L. L., Title,
C. F. Improvement in

42 Complainant also offers in evidence a printed copy of the provisional and complete specifications making part of British letters patent No. 140, dated January 26, 1858, the same being a printed copy of said specification furnished by the English patent office and being one of the English patents upon which complain-

ant's application was rejected, as stated in the bill of complaint herein, and the same is marked Complainant's Exhibit Newton's English Specification, 29 Oct., 1883. T. G. Ex.

Complainant also offers in evidence a printed copy of the provisional and complete specification making part of British letters patent No. 949, dated April 18th, 1861, the same being a printed copy of said specification furnished by the English patent office and being one of the English patents on which complainant's application was rejected, as stated in the bill of complaint herein, and the same is marked Complainant's Exhibit Steven's English Specification, 29 Oct., 1883. T. G., Ex.

Complainant also offers in evidence a printed Patent Office copy of the specification and drawing making part of United States letters patent No. 149,805, dated April 14, 1874, being also one of the patents upon which complainant's said application was rejected, as stated in said bill, and the same is marked Complainant's Exhibit Street's Patent, 29 Oct., 1883. T. G., Ex.

JOHN MACWATTY, produced as a witness on behalf of complainant and being duly sworn and interrogated by complainant's counsel, testified as follows:

1 Q. State your name, age, residence, and occupation.

A. My name is John Macwatty; my age is 24 years; reside at No. 82 North Charles street, Baltimore, Maryland; am engaged
43 in manufacturing canvas belts upon the plan of the invention of Maurice Gandy, the works of the Gandy Belting Company in Baltimore being situated at No. 15 Hollingsworth street.

2 Q. Please state how long you have been engaged in manufacturing and selling canvas belts upon the plan mentioned in your last answer.

A. I began to manufacture these belts under the direction and supervision of Mr. Gandy, in Liverpool, England, in January, 1879, and I continued to assist him in manufacturing these belts there until May of that year; I then went to Scotland—being most of the time in Glasgow—and was there engaged in selling the belts until December, 1879; I then returned to Liverpool and remained in the factory assisting Mr. Gandy until August, 1880; I then came to this country for the purpose of assisting in the manufacture of these belts, and introducing them into public use, and I have been engaged in that business ever since. I have had charge of the Gandy Belting Company factory, in Baltimore, since April, 1881. The Gandy Belting Company was organized in Baltimore, in June, 1880, for the purpose of manufacturing belts upon the plan of Mr. Gandy's invention, and commenced to manufacture in November of that year.

3 Q. Please give the names of the parties composing the Gandy Belting Company.

A. The company consisted originally of Maurice Gandy himself, but it was reorganized on the 30th of June, 1883, and it now consists of Maurice Gandy, John Macwatty, and John Henry Phillipps.

4 Q. State approximately the capital the company has invested

in the establishment of its works in Baltimore for the manufacture of the belt.

A. Somewhere from forty to fifty ($50,000) thousand dollars, the most of which has been furnished by Mr. Gandy himself

5 Q. State, if you please, how extensively you are manufacturing and selling these belts.

A. I cannot state exactly the number of feet of belt we manufactured and sold the year ending June 30, 1883, but am certain
44 that we manufactured and sold not less than 500,000 running feet—the belt varying in width from one to thirty inches.

6 Q. State, if you please, whether or not the belt is giving general satisfaction to those who have purchased and used it.

A. The belt gives very general satisfaction, the best proof being the continually increasing demand for the belt.

7 Q. State, if you please, what advantage this belt has, as compared with india-rubber belting and leather belting.

A. As compared with rubber belt, it is very much stronger and more durable, and can be operated in a temperature where india-rubber belt cannot be, and it effects a great saving of india-rubber, which is of great importance, india-rubber being a scarcer and dearer article; and, moreover, the Gandy canvas belt can be used for transmitting power wherever a belt is required, and where india-rubber cannot be used; thus, upon pulleys running at high velocity, india-rubber cannot be used, for the reason that they cut themselves to pieces and come apart, and where a shifting fork is used to transfer the belt from a fast to a loose pulley, an india-rubber belt is impractical, as it soon becomes disintegrated. As compared with leather belting, it effects a great saving a leather, which is also a scarce and dear commodity. It is quite as durable as the leather belt, and is much stronger. We furnish, as a substitute for a single leather belt, a 4-ply canvas belt, and as a substitute for a double leather belt, we furnish an 8-ply canvas belt, and our 8-ply canvas belt has nearly twice the strength of a double leather belt, and our 4-ply canvas belt bears about the same proportion to a single leather belt in strength, the two kinds of belt being equal in width. Our belt has also the additional advantage of being susceptible of being made of any desired length without splicing or seaming.

8 Q. To what features in the construction of the belt do you attribute its superiority and success?

45 A. The success and superiority of the belt is undoubtedly due to the manner in which the canvas is made, folded, stitched, saturated with oil, stretched, and pressed. The canvas, being the foundation of the belt, is, of course, of the best quality, and is folded from the two outside edges toward the centre, leaving both edges of the belt a smooth fold, exposing no selvage of the canvas at either edge. This method of folding makes the belt of exactly even thickness, and with smooth edges, and the belt, being stitched by parallel rows of stitching close together, draws the several plies of the canvas hard upon each other with uniform pressure over the entire surface of the belt, giving the belt great strength and firmness, the stitching itself adding to the strength of the canvas. The

belt is then saturated with linseed oil, which makes it proof against dampness or atmospheric changes. The belt is then stretched and drawn through calender rollers, by which it is made smooth, hard, rigid, and non-elastic.

9 Q. Please describe how you fold the canvas to form the belt.

A. For example, to make a six-inch 4-ply belt we have the canvas woven twenty-four (24) inches wide. We then fold this strip of canvas from both sides, making the first fold on each side six (6) inches wide, bringing the two selvages together in the center of the strip of canvas. We then turn one double fold over on the other, bringing the two round edges together. The belt is then ready for stitching.

To make a 6-ply belt we proceed in exactly the same way until we have made the first fold, after which we insert a strip of canvas twelve (12) inches wide between the first folds of the twenty-four-inch strip. We then turn the two double folds together, which gives us the 6-inch belt of six thicknesses or plies, and leaves all the selvages inclosed with the smooth folds of the canvas.

To make an 8-ply belt of six inches wide we proceed in the same way; but instead of a single strip of canvas 12 inches wide laid between the first folds we insert two 12-inch strips and fold them
46 as before, and proceed in the same way to make a 10-ply belt.

By this method of folding the belt the edges of the canvas are thoroughly protected and the edges of the belt are smooth, and the belt is of exactly the same thickness through its entire structure; and by the method of stitching the belt, as I have described, with strong cord in close parallel rows, the surface of the several plies of canvas composing the belt is brought into close contact, the strength of the several plies of canvas being united upon one another, making a belt of very great firmness and strength, and perfectly straight over its entire length, the belt being made of any length or width that may be required, the oil protecting the canvas from dampness or atmospheric changes, and by which shrinking or mildewing is prevented.

10 Q. State whether or not, at the time you went in the employ of Mr. Gandy, in 1879, you had ever seen any canvas belts of any kind.

A. No; I had not.

11 Q. State whether or not, since that time, and during the time you have been connected with this belt, you have seen any canvas belts in use or on sale which were like, or substantially like, this belt of Mr. Gandy, and that had been made previous to the time of your going into the employ of Mr. Gandy in 1879.

A. No; I never have, either in this country or in any other.

12 Q. Please to produce specimens of your 4-ply, 6-ply, and 8-ply belt completed, ready for use, and please also to produce specimens of the same belt folded, ready for stitching.

A. I now produce specimens of the 4-ply, 6-ply, and 8-ply belt, both after being folded and before stitching and after being folded and stitched, and also after being saturated with oil, stretched, and calendered, ready for use.

Specimens offered in evidence, and marked, respectively,
47 Complainant's Exhibit 4-Ply, 6-Ply, and 8-Ply Folded and Unstitched; 4-Ply, 6-Ply, and 8-Ply Folded and Stitched; 4-Ply, 6-Ply, and 8-Ply Completed Belt, Ready for Use. 29th Oct., 1883. T. G., Exr.

13 Q. Please to examine the English specification I now show you, being the provisional and complete specification of the British patent No. 140, granted to William Edward Newton, dated 26th January, 1858, being Complainant's Exhibit Newton's English Specification, and state whether you have read it and understand the invention described by it.

A. I have read it and think I understand the same.

14 Q. Of what practical value would a belt be made upon the plan described in this specification?

A. The belt made upon the plan described in this patent of Newton would be of no practical value; a belt made upon that plan, running upon a 6-inch pulley, for example, at high velocity, would go to pieces in a very short time. I doubt very much if there was ever a belt made upon that plan. The idea of covering the belt and sticking the different plies together with a cement composed of umber and oil is absurd. The belt would not last as long in use as it would take a man to make it. The belt described in Newton's specification depends upon the cement for holding the plies together, it being stitched along one of its edges only. A belt made in that way would very soon become disintegrated upon an ordinary-sized pulley at an ordinary velocity; the several plies would become separated, the belt would stretch unequally, and would run off the side of the pulley; and, moreover, after the cement became hard, even if the cement had strength enough to hold the plies together, the belt would bite itself to pieces on the pulley. A belt made upon the plan described in Newton's specification, and running between shifting forks, would crumble and tear itself to pieces in a few hours. Such a belt as that would be very much inferior even to an india-rubber, and would, therefore, under any circumstances, be of no practical value to manufacturers. Newton's patent is really
48 for an enameled cloth as a kind of substitute for leather, and the idea of making a belt of it is a mere suggestion that evidently has never been put in practice, for no one that has ever made or used a belt would think of making a belt as described in this specification, for such a belt, for all practical purposes, would be absolutely worthless.

15 Q. How does the belt suggested in this specification of Newton's differ from the Gandy belt?

A. First, it isn't folded like the Gandy belt; second, it isn't stitched like the Gandy belt; and third, it isn't saturated with oil like the Gandy belt, and if it were calendered and stretched like the Gandy belt preparatory to using it would be all pulled to pieces in the operation, the cement would be crushed into powder, and the several plies would be loosened from each other. The belt described in Newton's specification depends entirely for its practical

value on the cement used in its construction, whereas in the construction of the Gandy belt there is no cement used at all. The Gandy belt depends for its practical value upon the method of folding, stitching, oiling, stretching, and calendering the canvas, all of which are necessary to make the belt firm, smooth, and straight and of the necessary strength; in short, I know of no other method of making a belt of canvas that would be of any practical value.

16 Q. Please examine the provisional and complete specification of British patent No. 949, dated April 18, 1861, granted to Charles Stevens, and being Complainant's Exhibit Stevens' English Specification.

A. I have read it and believe I understand it.

17 Q. State how the belt described or suggested in that patent differs from the Gandy belt.

A. Stevens' belt consists of cotton woven in bands of the desired width. It is not a belt composed of folded canvas stitched together, by which great strength is obtained. I have, and here produce, a specimen of belt made like this described in Stevens' patent.

49 Specimen of belt offered in evidence, and marked Complainant's Exhibit Stevens' Belting. 29th Oct., 1883. T. G., Ex'r.

This belting is useful for some purposes in flour mills, for such as elevating flour and the like, where very little strain is placed upon the belt; although the belt is now in the market, and used for elevating flour, it is not used in any other way, and is utterly unfit for driving machinery, it being very sleazy and wholly wanting in the firmness necessary to make a practical belt. Both selvages of the belt are exposed to the wear of the shifting forks, and the belt depending for its strength more upon the selvages than anything else, it is utterly destroyed as soon as the selvages are worn off. It is impossible to make a belt of any practical value for general use of a single thickness of woven fabric. If the warp and weft be made of thick, heavy cord, necessary to yield the desired strength, it is impossible to beat it up in a loom tight enough to make it smooth and firm, and, moreover, the edges of the belt will be very uneven; the belt will stretch unevenly, and will not hug the pulley closely, so as to make it draw well or run straight. To make a belt of the desired strength and firmness and solidity it must be composed of several thicknesses or plies of hard-woven canvas folded so as to bring the selvage inside, make the edges smooth, and be thoroughly stitched together, so that the strength of the several thicknesses of canvas are united and equalized, by which the same homogeneous texture is obtained through the entire belt, substantially the same as characterizes the fibrous texture of a leather belt. Where the belt is made of a single thickness of woven fabric, as soon as the warp or weft of that fabric is broken or worn off the belt is destroyed, and such belts are very short-lived necessarily in running through shifting forks, where the edges are exposed to the constant wear of the forks; and in case of a thick belt made of a heavy thread and spun and woven tight enough to give it any practical strength or firm-

ness, it will cut itself to pieces when running on a small pulley in less time than it would take to make the belt.

50 18 Q. I place in your hand a copy of the specification and drawing making part of United States letters patent No. 149,805, granted to Edwin A. Street April 14, 1874. Please state whether you have read it and whether you understand it.

A. I have read it and believe I understand it.

19 Q. State how the belt described in this patent differs from the Gandy belt.

A. The belt described in this patent is simply an india-rubber belt; its practical value, if it has any, depends upon the rubber and its vulcanization. It differs from Gandy's belt in that Gandy's belt is made wholly of folded canvas, no other material being used in the construction of the belt, but simply folded canvas stitched together, and oil to protect it from atmospheric changes. One of our principal advantages is in avoiding the use of rubber altogether and in obtaining a belt of sufficient firmness and strength without the aid of rubber. The use of rubber and its vulcanization in the manufacture of these belts weakens instead of increasing the strength of the belt as a whole. The vulcanization of the rubber upon the canvas destroys the strength of the canvas. The Gandy belt is a laminated canvas belt, pure and simple, whereas Street's belt is an india-rubber belt. It is true Street uses canvas in manufacturing his belt, but that is true of all india-rubber belts, the body of the belt being always made of canvas stuck together with india-rubber and vulcanized. It is also true that Street folds over the two edges of his belt and stitches them together after coating them with rubber and before vulcanization, but the stitching is not done for the purpose of giving firmness, strength, and solidity to the belt, but merely for the purpose of holding the canvas in contact with the rubber until it is vulcanized. The objection to this rubber belt and to all rubber belts is that the rubber peels off the canvas. They can never be used to run between shifting forks, for the reason that the rubber is soon stripped or worn off the edges, exposing the naked canvas and leaving the rubber to peel off the surface of the belt. For

51 this reason these belts are never used in machine-shops or in other factories where they have to be run on a fast and loose pulley and continually shifted from one to the other.

This is an objection that is peculiarly applicable to this belt of Street. The belt to have sufficient strength would have to be made of hard, stout canvas, off which the rubber would readily peel, so that the different plies of the belts in running around a small pulley would become separated from each other, leaving the stitching loose, which would necessarily destroy the belt. Rubber belts are very common and useful in a great many places, and a good many of them are used, but they are as unlike the Gandy belt as they are unlike a leather belt, and cannot be used as a substitute for either in a great many places.

20 Q. State whether or not Mr. Gandy has now the manufacture of this belt in successful operation in Baltimore, and whether he has succeeded in introducing it in public use.

A. Yes; he has introduced it very successfully, and it is continuing to grow in favor.

21 Q. State whether or not since Mr. Gandy commenced the manufacture of such belt in this country others have commenced to manufacture and imitate that belt in this country.

A. They have; and what makes it a more glaring infringement is the fact that the manager of the factory manufacturing the infringing belt was formerly a manager of our factory and acquired all his knowledge of the belt in such capacity.

JOHN MACWATTY.

Sworn to before me this 30th day of October, 1883.

TIMOTHY GRIFFITH,
Clerk of U. S. Circuit Court, Southern District of New York.

Examination of witnesses adjourned until 31st day of October, 1883, at 11 o'clock in the forenoon of that day.

52 NEW YORK, *October* 31, 1883.

SILAS B. BROWN, a witness produced on behalf of complainant, being duly sworn and interrogated, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. My name is Silas B. Brown; I am 29 years of age; I reside at 568 Warren street, Newark, N. J.; I am with Stephen Ballard & Co., of 79 Chambers street, N. Y., manufacturers and dealers in leather belting, and dealers in rubber and cotton belting.

2 Q. State, if you know, how long Mr. Ballard has been engaged in the manufacture of leather belting.

A. Some twenty-six (26) years.

3 Q. State, if you know, whether Mr. Ballard has the agency for the introduction and sale of the Gandy belting manufactured in Baltimore.

A. He has such exclusive agency for New York city and twenty (20) miles around about the same.

4 Q. How long has Mr. Ballard had such agency?

A. For a little over a year.

5 Q. State, if you please, who has the general management and introduction of this belt under Mr. Ballard.

A. I have.

6 Q. State, if you please, what success you have met with in the sale and introduction of this belt.

A. I have met with very good success; much more than Mr. Ballard expected, and the belt has given very general satisfaction.

7 Q. How does it compare in practical value with the leather and rubber belts?

A. For very many places it is an excellent substitute for leather, and some of our customers are replacing their leather belt, and it is very much better than a rubber — for almost all purposes for which belting is used.

8 Q. I place in your hands a copy of the specification and drawings making a part of the United States letters patent to Edwin A. Street, dated April 14, 1874, No. 149,805; please to state
53 whether you have considered it and understand it.

A. I have considered and think I understand it.

9 Q. State, if you please, how that belt differs from the Gandy belt.

A. In the first place, the patent refers to a rubber belt, and not an entirely cotton one. It depends upon the rubber for its practicability; without the rubber it would be practically valueless. The rubber is depended on to hold the layers of canvas together. In short, it is a rubber belt, and not a canvas belt.

10 Q. Please to examine the provisional and complete specification making part of the British letters patent No. 949, and dated April 18, 1861, granted to Charles Stevens, and state, if you please, whether you have considered the belt described by that specification.

A. I have considered it and think I understand the same.

11 Q. State, if you please, how the belt described by this specification differs from the Gandy belt.

A. This seems to be a solid cotton belt, but nothing is said about its being made of cotton duck and folded and stitched together as the Gandy belt is. I should think it very similar to the solid cotton belting made by the Russel Manufacturing Co. It differs as much from the Gandy belt as it is possible for one cotton belt to differ from another. It would be impossible to make a belt in this way having the solidity and strength of the Gandy belt. This belt is different from the Gandy belt in structure, and I believe very much inferior in strength and durability.

12 Q. Please to examine the provisional and complete specification making part of British letters patent No. 140, dated January 26, 1858, granted to William Edward Newton, for new or improved fabric, intended as a substitute for leather, and state whether you understand the belt suggested in that specification.

A. I have examined it and I do understand it.

13 Q. What, in your opinion, would be the practical value of a belt made upon the plan of that specification?

54 A. It isn't a practical invention applied to belting. I do not think a practical belt could be manufactured on that plan; the rows of stitching are only on the edges, and between the edges the belt would come to pieces and allow for the formation of air puffs, which immediately bring about the disintegration of the belt; the cement covering the belt would become hard and crumble.

14 Q. State, if you please, whether previous to your seeing this Gandy belt you had ever seen a belt that was like it.

A. It was an entirely new thing to me, and none of us had ever seen anything of the kind before.

15 Q. State, if you please, whether or not you have any letters from persons using the Gandy belt showing their approval of the belt; and, if so, please to produce them.

A. I have such letters, and I here produce one from A. L. Bauman, in which the belt is highly spoken of.

Letter offered in evidence and marked "Complainant's Exhibit Bauman's Letter, T. G., Ex'r, October 31, 1883."

GANDY *vs.* TELLER *et al.*

COMPLAINANT'S EXHIBIT BAUMAN LETTER. T.G., Ex'r. 31st October, 1883.

Office of A. L. Bauman, manufacturer of crackers, cakes, etc., Nos. 425, 427, 429, 431, and 433 West 3d St.

DAYTON, O., *August* 17, 1882.

Messrs. Stephen Ballard & Co., New York.

GENTS: With five years' experience using belting of different make, I consider the Gandy cotton belting the best by a large majority.

The difficulty of leather belting in my line of business is
55 the gases arising from anthracite coal, together with steam and heat, would parch the belts, whether we oiled them or not. The cotton belt is not susceptible of above influences in the least.

Have used the Gandy belt now over two years, and not one ever tore.

I could not speak better if I wrote all day.

Yours very respectfully,

A. L. BAUMAN.

P. S.—I use 24 of the Gandy belts out of 27. The odd three are old leather belts, which, when worn, I will replace with cotton belts.

I also produce a letter from M. Marcy of similar tenor.

Letter offered in evidence and marked "Complainant's Exhibit Marcy Letter, T. G., Ex'r, October 31, 1883."

COMPLAINANT'S EXHIBIT MERCY LETTER. T. G., Ex'r, 31 Oct., 1883.

GANDY *vs.* TELLER *et al.*

Office of M. Mercy, manufacturer of felt hats, 22 to 26 Scott street.

NEWARK, N. J., *Sept.* 28, 1883.

Messrs. Stephen Ballard [& Co.], New York.

GENTLEMEN: It is with pleasure I take this opportunity of submitting my testimony as to the great value of the Gandy cotton belting in hat factories or in any case where trouble arises from slipping belts caused by water or steam. As to their durability they are unsurpassed.

Very truly yours,

M. MERCY,
Per N.

56 I produce, also, a letter from Allen Bros. commendatory of the belt.

Letter offered in evidence and marked "Complainant's Exhibit Allen Letter, T. G., Ex'r, October 31, 1883."

COMPLAINANT'S EXHIBIT ALLEN BROTHERS' LETTER. T. E., Ex'r, 31st Oct., 1883.

GANDY *vs.* TELLER *et al.*

Office of Allen Brothers, manufacturers of hanging paper.

SANDY HILL, N. Y., *Dec. 29th*, 1882.

Messrs. Stephen Ballard & Co.

GENTS: We have yours of 27th inst. We have used one of your 10-in. "Gandy" belts nearly two years in a very hard place for a belt, frequently getting wet, and is in good condition yet. All others of recent purchase are doing well. We give you a new order to-day as follows:

40 feet 10-in. 8-ply Gandy.
200 " 6-in. 6-ply "

Send 100 feet 6-in. by National Express and balance by H. R. R. R.

Yours very truly, ALLEN BROTHERS.

I produce, also, a similar letter from Knecht & Brown.

Letter offered in evidence and marked "Complainant's Exhibit Knecht & Brown Letter, T. G., Ex'r, October 31, 1883."

57 COMPLAINANT'S EXHIBIT KNECHT & BROWN LETTER. T. G., Ex'r, 31st October, 1883.

GANDY *vs.* TELLER *et al.*

Office of Phœnix Iron Foundry, Knecht & Brown, 195 & 197 Wade street.

CINCINNATI, *April* 30, 1883.

Messrs. Stephen Ballard & Co., 79 Chambers street, New York, N. Y.

GENTS: We are in receipt of your favor of the 25th inst. inquiring about the Gandy cotton belting. In reply, would say that we have been using it for two or three years, one of them on our main driving shaft from the engine, and it has given us better satisfaction than any leather belting we have ever used.

Truly yours, KNECHT & BROWN.

I also produce a similar letter from Little & Rowe.

Letter offered in evidence and marked "Complainant's Exhibit Little & Rowe Letter, T. G., Ex'r, October 31, 1883."

COMPLAINANT'S EXHIBIT LITTLE & ROWE LETTER. T. G., Ex., 31 Oct., 1883.

GANDY *vs.* TELLER *et al.*

Stephen Ballard & Co., leather belting, 79 Chambers street.

NEW YORK, *April 25th*, 1883.

Messrs. Little & Rowe.

GENTLEMEN: We understand you have used the Gandy cot-
58 ton belting. Will you be kind enough to give us your opinion of the belt and whether or not it has proven satisfactory? We shall be greatly obliged for the information.

Yours respectfully,

STEPHEN BALLARD & CO.,
B.

The belting above alluded to has been in use about a year, and has given entire satisfaction. Our foreman says it has worn better than leather belting.

Yours truly,

LITTLE & ROWE.

Rochester, April 26, 1883.

I also produce a letter from the Winnebago Mill, written by manager, Mr. J. B. Merritt.

Letter offered in evidence and marked "Complainant's Exhibit Winnebago Letter, T. G., Ex'r, October 31, 1883."

COMPLAINANT'S EXHIBIT WINNEBAGO LETTER. T. G., Ex'r, 31st Oct., 1883.

GANDY *vs.* TELLER *et al.*

ROCKTON, ILL., *Sept. 3rd*, 1883.

Stephen Ballard & Co., 79 Chambers St., N. Y.

GENTLEMEN: In answer to your inquiry as to the working of the Gandy cotton belt we bought of you we would say that we have it in use where it is constantly hot and often wet with hot water. It has now outworn any three rubber belts we ever used in that place and is still good. We bought it especially for that place, as we had always been troubled to get a belt that would stand the heat and wet. This is doing better than we expected.

Yours truly,

BRADNER SMITH & CO.,
Per MERRITT.

59 We have also a great many other letters of the same tenor, but these are sufficient to show what our customers think of the belt. These letters were all received by us in answer to our inquiries as to the practical value of this belt, and they were all received within a day or two after their respective dates.

SILAS B. BROWN.

Sworn to before me November 2d, 1883.

TIMOTHY GRIFFITH,
Clerk of U. S. Circuit Court, Southern District of New York.

Examination adjourned until November 1, 1883, at 11 o'clock a. m.

60 NEW YORK, 1*st November*, 1883.

Parties met pursuant to adjournment.

JOHN HENRY PHILLIPPS, a witness produced on behalf of complainant, being duly sworn, in answer to interrogatories propounded by counsel for complainant testifies as follows:

1 Q. State your name, age, residence, and occupation.

A. My name is John Henry Phillipps; am twenty-six years of age. I reside at present in Baltimore, Maryland. I am engaged in the manufacture of the Gandy belt.

2 Q. State, if you please, how long you have been engaged in handling and manufacturing the Gandy belt.

A. I went in the employ of Mr. Gandy, in Liverpool, on the 1st day of January, 1881, and I remained in Mr. Gandy's factory for a period of about three (3) months, until I had learned the method of manufacturing his belt. Then I became travelling salesman for the sale of the belt in Wales and in the middle counties in England. I continued as salesman in England until the 24th of September, 1881. I then came to the Baltimore factory, and have been engaged there upon the manufacturing of the belt ever since.

3 Q. State, if you please, whether or not at the time you went in the employ of Mr. Gandy in England you had ever seen any belt like the Gandy belt.

A. None whatever.

4 Q. State whether, in travelling through England and Wales as a salesman for this belt, you met with any belt like the Gandy belt which had been made previous to the invention of Gandy's belt.

A. None whatever.

5 Q. State whether or not, since you have been in this country manufacturing this belt, you have seen any belt like the Gandy belt that was made before Mr. Gandy's application for this patent.

A. No; none whatever.

61 6 Q. Please state approximately the extent of the manufacture of this belt by Mr. Gandy in this country.

A. We manufactured and sold over (500,000) five hundred thousand running feet of belting of different widths during the year ending June, 1883. Mr. Gandy manufactured and sold about the same quantity in Liverpool, England.

7 Q. How does this belt compare with leather and india-rubber belts in point of efficiency, strength, and durability?

A. The gripping power—by which I mean the power to transmit motion—of the Gandy belt is superior to either leather or rubber, and our 4-ply belt of corresponding widths is greater in strength than a single leather belt, and our 8-ply belt is very much greater in

strength than a double leather belt, and in durability, in many places, our belt is very much superior to leather belts. As compared with rubber belt of corresponding thickness, our belt has about three times the strength of a rubber belt, and it will certainly wear twice as long. The great objection to india-rubber belts is that they come apart and the strength of the canvas used in their manufacture is very much injured in preparing it to receive the india-rubber coating, and in the vulcanization of the rubber, but the greatest of all objections is that the rubber belt abrades when running through guide-forks or when running as cross-belts. The friction of the belt upon itself, or upon the guide-forks, tears the rubber off the canvas and causes the plies to separate. Another objection to the india-rubber belt is due to the fact that the rubber blisters and puffs up on the canvas when used in the open atmosphere and exposed to the influence of the sun and weather, the rubber peeling off the canvas in spots and destroying the belt; and another objection to the rubber belt is found in the fact that when the rubber is exposed to oil it becomes rotten and peals off the canvas, and where it is wet it slips on the pulley and pulls the rubber off the canvas.

62 The Gandy belt has great advantage over india-rubber belt in these particulars, as it is not injured or affected by any of the circumstances I have mentioned, and as compared with leather belt it has great advantage in the fact that it can be run in the open atmosphere without injury, and in wet, damp places without injury, and in hot, dry places and in places where the belt is exposed to coal gas or other gases, and also to the fumes of acids, such as are used in fertilizing and other chemical works, it does not sustain injury.

Another advantage which the Gandy belt has over the leather belt is that it is made of one continuous piece, of even thickness and strength. It costs much less to make and effects a great saving of leather.

8 Q. State, if you please, whether the Gandy belt is giving general satisfaction to those who have bought and used it, so far as you know.

A. It has; I have a great many letters from our customers commendatory of the belt, and the demand for the belt is continually and rapidly increasing.

9 Q. To what features in the belt do you attribute its superiority and success?

A. Its superiority, in my opinion, is due to the method of folding the canvas and thoroughly stitching its several plies together and afterwards soaking it with oil, stretching and calendering it. By these means the selvage of the canvas is entirely protected and the strength of the several plies of canvas are united in a solid compact form or mass, and is protected from the dampness and other changes of atmospheres, and is made smooth and straight and of uniform tension. Of course the belt to be of best quality should be made of good canvas. The belt is worthless unless it is folded in such manner as to protect the selvage of the canvas, and is thoroughly stitched so as to bring the several plies in absolute contact over its

entire surface; and to this end we have found it necessary to stitch the belt every quarter of an inch through its entire length and over its entire surface with stout sewing-cord—the cord adding to the strength of the belt as well as drawing the several plies of canvas hard upon each other.

There is a feature in this belt that is not generally under-
63 stood. It is this: For example, in the weaving of the canvas the warp is taken up by the weft, and therefore when a single piece of canvas is put under a tensile strain the kinks in the warp made by beating up the weft are stretched out, so that a belt made of a single thickness or ply of canvas is so stretchy and becomes so sleazy as to be worthless; whereas if the belt be made of several thin plies thoroughly stitched together, the stitching through the warp and weft and the friction of one ply upon the other prevents the stretching; hence, the great strength and firmness of the Gandy belt, the folding protecting the selvage of the canvas and preventing its disintegration, while the oil prevents the dampness from shrinking or mildewing the cotton.

10 Q. Please examine the provisional and complete specification making part of British letters patent No. 949, dated April 18, 1861, granted to Charles Stevens, being Complainant's Exhibit Stevens' English Specification, and state whether you have read and understand the invention described by it.

A. I have read the specification and I understand the invention described by it.

11 Q. State, if you please, how the invention or belt described in that specification differs from the Gandy belt, if at all.

A. It isn't like the Gandy belt in any sense. It isn't folded; it isn't stitched; it isn't oiled. It consists of a single thickness of woven fabric—woven of the width the belt is intended to be. The specimen produced by Mr. Macwatty and marked "Complainant's Exhibit Stevens Belting" sufficiently illustrates the kind of belt as produced by Stevens' method. It is wholly unfit for the transmission of power, and is used in flour mills and similar places, where little or no strain is necessary. It is used in such places for elevating flour by means of little buckets attached to it. All the objections that I have heretofore pointed out to belts made of a single thickness of woven fabric are applicable to this belt. Even if you were to take two or three of these belts and stitch them together,
the selvage of the belt would be exposed to the wear of the
64 shifting forks, and would be soon destroyed. As a manufacture, the belt is wholly unlike the Gandy belt, as is manifest upon mere inspection of it.

12 Q. Please to examine the provisional and complete specification now shown you, making part of Newton's British patent No. 140, dated 26th January, 1858, and state whether you have read it and understand the invention described by it.

A. I have read and I understand it.

13 Q. Please to state how the belt described by that patent differs from the Gandy belt, if at all.

A. The patent is really for the manufacture of a material as a

kind of substitute for leather. I don't believe there ever was a belt made like that described in this patent, and if there was the belt didn't last as long as it took to make it. It consists of two or more plies of canvas stuck together at the edges, or made in the form of a tube, with one or more plies drawn inside the tube, the several plies of the canvas being stuck together with a cement composed of oil and umber. A belt made in this way, as soon as it got dry and [was] put upon a pulley running at high velocity, would go to pieces in a short time. The cement would break up and the several plies would separate, so that the belt would thus disintegrate. Belts made in this way and stuck together with thick cement composed of oil and umber would disintegrate, even if it were stitched, because the belt, in running upon a small pulley at high velocity, would crumble the cement, leaving the several plies of canvas loose. The belt described in this patent is no more like a Gandy belt than it is like a leather belt or a rubber belt, and it is of no value as a substitute for either.

14 Q. Please to examine the specification and drawing I now show you, making part of the patent granted to Edwin A. Street, No. 149,805, dated April 14, 1874, and state, if you please, how it differs from the Gandy belt, if at all.

A. This patent describes an india-rubber belt differing from the ordinary india-rubber belt only in that the canvas is stitched together after the india-rubber has been applied in the inside,
65 the rubber being applied to the outside after the canvas is stitched together. The value of the belt depends upon the india-rubber; without that it would have no practical value; and all the objections I have pointed out against india-rubber belts are applicable to this belt. As a manufacture, it is as unlike this Gandy belt as the leather belt is, and it is just as good a substitute for a leather belt as it is a Gandy belt, and practically it is no better than other rubber belts. The stitching in this belt is merely for the purpose of drawing the surfaces of the applied india-rubber together on the inside, and holding them together until the rubber can be applied to the outside and the whole vulcanized. The evident purpose of the inventor, Street, was to make an improved rubber belt. The idea of making a belt wholly of canvas, without the intervention of cement or india-rubber of any kind, is not suggested by the patent at all.

15 Q. State whether or not; since Mr. Gandy commenced the manufacture of the belt in this country, others have commenced to imitate this belt in this country.

A. Yes, sir; Mr. Gandy's former manager in this country, who learned how to manufacture the belt in Mr. Gandy's factory in Liverpool, is now manufacturing the belt in Philadelphia for the Maine Belting Company. JOHN M. PHILLIPPS.

Sworn to before me this 1st day of November, 1883.

TIMOTHY GRIFFITH,
Clerk of the United States Circuit Court
for the Southern District of New York.

66 In the Supreme Court of the District of Columbia. In Equity.

Bill filed the third day of May, A. D. 1883.

Between—

MAURICE GANDY, Complainant,
and
H. M. TELLER, as Secretary of the Interior, and E. M. MARBLE, as Commissioner of Patents, Defendants.

On bill under section 4915 of the Revised Statutes to obtain a patent.

LIVERPOOL, *December 20th*, 1883.

Complainant proceeding *ex parte*, as per order of the court, dated October 20, 1883.

Present: Amos Broadnax, for complainant; no one appearing for defendants.

MAURICE GANDY, a witness produced in his own behalf, and interrogated by complainant's counsel, testifies as follows:

1 Q. State your name, age, residence, and occupation.

A. My name is Maurice Gandy; I am fifty-four years of age; my residence is in New Brighton, county of Chester; my place of business is in Liverpool, county of Lancaster, both in England, and I am engaged in manufacturing cotton belting, known as the Gandy belt, in England, and also in Baltimore, Maryland, one of the United States of America.

2 Q. State, if you please, how long you have been engaged in the manufacture of the belt referred to in your last answer, and please to state also how the invention of this belt grew to its pres-
67 ent state of perfection from the original conception of the idea of manufacturing belts of cotton canvas or duck.

A. In 1872 and 1873 I was engaged in supplying the manufacturers of rubber belt with the canvas used in the manufacture of rubber belting, and in the year 1873 my attention was drawn to the manufacture of drier felts for paper manufacturing, and I attempted to manufacture these drier felts of cotton canvas; the attempt, however, proved a failure. The proprietor of one of the mills in which I attempted to introduce the drier felt called my attention to the deficiencies of leather belting in paper mills, and stated to me that there was no belt that was really well adapted for use in paper mills, and asked me why I did not try to make a belt that was better adapted for use in paper mills and similar places than the belts made of leather, or rubber, or wool, that was then giving the paper makers much trouble on account of the dampness in the mills. Upon this hint I conceived the idea of manufacturing belts for driving machinery of cotton canvas, and I produced my first belts somewhere about the middle of the year 1873. That belt was made of ordinary cotton canvas, such as I was supplying to the india-rubber belt makers. It was composed by folding the canvas precisely as I fold it now in manufacturing my belts, and the several

folds or plies of canvas were stitched together by longitudinal rows of stitching, precisely as I now stitch my belts, differing, however, from my present method in that the rows of stitching were in my first belts about one inch apart; but finding that insufficient I stitched them with rows of stitching half an inch apart, which stitching I subsequently found to be also insufficient. I thereupon adopted my present method of stitching the belt with rows of stitching one-quarter of an inch apart, but the belt as I made it in 1873 had the rows of stitching one inch apart. It was not then saturated with oil, but consisted simply of the canvas folded so as to bring the selvage of the canvas inside of the belt, leaving the edges of the belt, thus forming the edges of the belt of the smooth, even, fold of the canvas, the several plies or thicknesses being
68 stitched together, as I have already stated.

This belt I found to be insufficient for the reason that it was very much affected by atmospheric changes and would stretch and stretch until there seemed to be no end to their stretching; and another difficulty I found was that the belt would not adhere to the pulley, but would slip, so that in practice I considered it a failure. I then commenced a series of experiments with the determination of producing a good practical belt made of cotton canvas, and I persevered in my experiments from the time I commenced in 1873 down to somewhere about the middle of 1877 before I succeeded in producing a satisfactory belt such as I now manufacture, adhering to my original method of folding the canvas so as to bring the selvage in the inside and form the edges of the belt at the folds of the canvas. I commenced my further experiments by having canvas woven of suitable widths to form the belts of the width I wanted them to be when folded.

This canvas I had hard woven and folded and stitched together, as I have already described, the rows of stitching being somewhere about half an inch apart. The hard-woven element in the canvas cured that defect in the belt due to the stretching that characterized the belt made of ordinary canvas, but the slip of the belt on the pulley was increased, as the hard-woven canvas did not adhere to the pulley as well as did the soft canvas, and the belt was still defective on account of atmospheric changes, and a new difficulty presented itself, growing out of the hardness of the canvas; it was this: The face of the belt next the pulley, on account of the constant bending and straightening around the pulley, would cut itself off.

This I found a serious difficulty; the canvas had to be made hard enough to avoid the stretching, and when made hard enough to meet this difficulty, then the inside lamina of the belt would bite itself off, and would also destroy the stitching that held the several plies together.

To get over this difficulty I instituted a lot of experiments
69 extending over considerable time. The point was to retain the hard-woven quality of the canvas and at the same time to soften it so as to prevent the cutting, as I have already stated. To do this I first treated the canvas with paraffine, which did not

succeed; it not only did not sufficiently soften the canvas, but it caused the belt to slip to such a degree as to render it impracticable. I next treated the belt with petroleum oil; this did not succeed, because it quickly evaporated and left the canvas harder than before. I next treated the canvas or belt with a preparation of acetate of lead, the effect of which was to make the canvas harder than before. I then tried a preparation of catechu, similar to that used in the treatment of fishing nets to make them resist the action of the salt water; this, however useful in the treatment of fishing nets, did not succeed as an element in the manufacture of my belt. I then tried a coating of paint over the surface of the belt in combination with the solution of catechu, the paint being applied to the surface of the belt while it was still damp with the catechu solution. By this means I succeeded in making the belt grip or draw well on the pulley, but it did not prevent the inside lamina from cutting, as before stated, nor did it effectually prevent the shrinking and other defects due to atmospheric changes.

My next experiment was with linseed oil thinned with the spirits of petroleum. Through this mixture I passed the belt, but I did not soak or saturate the belt through and through; the effect of this was that the spirits of petroleum quickly evaporated, leaving a thin deposit of dried oil on the surface. This proving ineffectual, I passed the belt, in the same way as before, through hot boiled linseed oil. The effect of this was to leave a deposit of boiled linseed oil in the outside lamina or ply of the belt. This oil would dry hard, making the surface of the belt hard, causing it to crack, and did not effectually prevent the defects due to atmospheric changes, nor did it effectually soften the hard canvas.

I then hit upon the idea of soaking the belt or canvas in a mixture of linseed oil, resin oil, and petroleum oil, mixing these oils in about the following proportions, viz.: three parts of linseed oil, one part of resin oil, and one part of petroleum oil.

The belt being thoroughly saturated with this mixture of oils, I passed it between a pair of rollers by which I squeezed out the superfluous oil, while at the same time I forced it more effectually into the texture of the tight-woven canvas, thoroughly incorporating the oil with the fibre of the entire structure. By these means I succeeded in getting a satisfactory belt. The effect of this oil upon the canvas was to soften it and at the same time protect it against the defects due to atmospheric changes.

This mixture of oils when applied to the belt does not become hard and dry like paint oil but it assumes the consistency of an elastic gum; it effectually excludes the moisture, while at the same time it softens the hard-woven canvas sufficiently to prevent it from cutting.

This mixture of oils and this method of saturating the belt therewith I adopted about May, 1877, and I have adhered to it, substantially, from that time to this, varying it, however, to suit the different climates in which the belt is to be used.

I now considered my belt a practical success, but found upon a

little further experience that where the belt was subjected to great strain the canvas would cut the stitching and loosen the several plies of the belt. To overcome this difficulty I doubled the rows of stitching; in other words, I put the rows of stitching only a quarter of an inch apart instead of half an inch, as before, by which means I drew several plies of canvas more absolutely in contact with each other.

3 Q. Please to produce, if you can, specimens of the canvas of which you commenced to make your belt in 1873, as you have stated.

A. I have here, and now produce, some specimens of the identical canvas of which I made my first belts in 1873; I identify this canvas by the tag annexed to it in my own handwriting, signed with my own initials, and dated February, 1878. These speci-
71 mens of canvas were sent by me, through my solicitor, to the United States Patent Office shortly after I filed my application for the patent which I am now prosecuting.

Specimens of canvas offered in evidence and marked "Complainant's Exhibit Gandy's Soft Canvas Specimen."

4 Q. Please to produce, if you can, a specimen of the belt made by you of this soft-woven canvas in 1873.

A. I now produce a specimen of such belt; I identify it by the tag annexed to it, which tag is in my handwriting and signed with my initials, and is dated February 18th, 1878. This specimen of belt was sent by me, through my solicitor, to the United States Patent Office shortly after my application was filed, which I am now prosecuting, and at the same time that the specimens of soft-woven canvas was sent, that I have already produced and put in evidence.

5 Q. Please to produce a specimen of the hard-woven canvas first used by you in the manufacture of your belts.

A. I now produce a specimen of such canvas folded in the form of a 4-ply belt, the same being unstitched. I identify this specimen of canvas also by the tag annexed to it, in my handwriting, signed with my initials, and dated February 18, 1878, the same being sent to the Patent Office along with the specimen of soft-woven canvas.

6 Q. Please to produce, if you can, a specimen of your first belt made with hard-woven canvas.

A. I now do so, and I identify the specimen by the tag annexed to it, in my handwriting, and signed with my initials, and dated February 18, 1878, this specimen being also sent to the Patent Office, through my solicitor, along with the other specimens I have already produced.

The three specimens last produced are now offered in evidence, and are marked, respectively, Complainant's Exhibit Gandy's
72 Original Soft Canvas Belt and Gandy's Hard-Woven Folded Canvas and Specimen of Original Hard Canvas Belt.

7 Q. State, if you please, whether or not you folded your canvas and stitched it together in the manner substantially shown by Com-

plainant's Exhibit "Gandy's Original Soft Canvas Belt" in 1873, and whether you have continued to fold it and stitch it in that manner substantially from that time to this in the manufacture of your belt.

A. I have, placing the rows of stitching nearer each other, however, than shown in the specimen.

8 Q. State, if you please, how you fixed the date when you first commenced to manufacture or experiment in the manufacture of these belts, as illustrated by Complainant's Exhibit Gandy's Original Soft Canvas Belt.

A. I fix the date by reference to my own ledger, which I have here in Liverpool, and also by the books of the Singer Manufacturing Company in Liverpool, of whom I purchased my first sewing-machine, and which, as appears by the books of that company, was delivered on March 7th, 1873, as appears by a memorandum received by me from that company, dated December 17, 1883, and which I now produce.

Memorandum offered in evidence and marked Complainant's Exhibit "Singer Memorandum."

Memorandum.

From the Singer Manufacturing Co., 21 Bold street.

LIVERPOOL, 17*th Dec.*, 1883.

To M. Gandy, 5 Ansdell street, Liverpool.

DEAR SIR: We have your note of to-day, and have looked up our old ledgers and find you had the first machine on 7th March, 1873.

Pro THE SINGER MANUF'G CO.,
JAMES SMITH.

73 9 Q. Please to produce any specimens you may have of the belts made by you in the course of your experiments treated with tar or catechu, as you have described.

A. I now produce two specimens of such belt which were made some time prior to 1876. I think they were made some time in 1875, but I cannot be certain of the exact date, but I am certain that it was prior to 1876 that these belts were made. These two specimens of belt were treated with different kinds of tan, the light colored one being treated with oak tanning and the dark one with catechu.

Specimens offered in evidence and marked Complainant's Exhibits "Tanned Specimens."

10 Q. Please to produce, if you can, a specimen of your belt made of hard-woven canvas, such as you now use, and treated with the mixture of oils now used by you in the manufacture of your belts.

A. I now do so. This specimen of belt is folded but not stitched, and is treated with the mixture of oils referred to in your question; it is folded precisely as I folded my canvas in 1873 to produce belt.

It was made some time in the summer of 1878 to go to Vienna, and has been in my possession ever since, and is, I think, a striking illustration of the softening effect of the oil mixture upon the canvas.

I produce also a specimen of the same belt after it was stitched, the stitching in this case, however, being done before the oil mixture was applied. Both of these specimens were made at the same time, and parts of both of them were sent to Vienna in 1878.

Specimens offered in evidence and marked Complainant's Exhibit "Vienna Specimens of 1878."

11 Q. What other specimens of belt have you, made upon the plan of the perfected invention previous to the year 1878?

74 A. I produce here a specimen of the belt made in the latter part of the year 1877 and sent to Bombay. This specimen is a piece cut from a roll made and sent to Bombay at that time. This specimen was sent back to me in 1882, with an order to manufacture more belting of the same kind for that mill. This specimen of belt is the same as I now make them, with the exception of the stitching, which is one-half of an inch apart, instead of one-fourth of an inch, as I now stitch them. The specimen serves to illustrate the fact that the mixture of oils with which the belt is treated preserves the canvas in a pliable condition for a long time, not only in the climate of England, but in the climate of the tropics. The specimen differs somewhat in appearance, owing to the fact that it is covered with a coating of red oxide of iron and oil, applied at the time the belt was made in 1877.

Specimen offered in evidence and marked Complainant's Exhibit "Bombay Specimens of 1877."

12 Q. Please to produce, if you can, a specimen of the belt as first made by you of hard-woven canvas, and without being saturated with oil or treated with any other mixture, and which will show the manner in which the inside lamina of the belt cut itself in running on the pulley.

A. I am not able to produce any specimen of belt such as mentioned in your question. They were made a long time ago and I have not been able to find any specimens about my works, although I have made diligent search in the hope of finding some specimens of such belt.

13 Q. State, if you please, whether or not by making the belt as you have described in manufacturing it as finally perfected by you, you overcame entirely the difficulty mentioned in my last question—I mean, of course, the cutting of the inside lamina of the belt.

75 A. I have in all cases, excepting where the belt runs over a very small pulley of high velocity. In such cases the inside lamina of any belt will cut itself more or less; but that is true also of leather belting, and indeed all kinds of belting.

14 Q. Please to produce, if you can, a specimen of your belt, showing the manner in which the inside lamina cut itself when

running on a small pulley at high velocity, as mentioned by you in your last answer.

A. I now produce such specimen.

Specimen offered in evidence and marked Complainant's Exhibit "Cut Belt."

15 Q. State, if you please, who is the senior member of the firm known as the Gandy Belting Company, in Baltimore, Maryland, one of the United States of America?

A. I am.

16 Q. Please to state when you organized that firm.

A. I organized that firm in June, 1880, but before organizing that firm I took to the United States, in May, 1880, £500 worth of the belting, and exhibited it at the Millers' International Exhibition, held at Cincinnati, where I took the first premium for fibrous belts. The belt was examined by a great number of people at the exhibition in Cincinnati, all of whom expressed themselves highly pleased with the belt, and many of whom purchased it and put it in practical operation. There was no other belting on exhibition there that bore any resemblance to my belt—indeed, there was no other fibrous belt on exhibition there excepting such as is exemplified by Complainant's Exhibit "Stevens Belting."

17 Q. Please to state to what extent you have succeeded in introducing the Gandy belting in the United States.

A. Our firm, the Gandy Belting Company, manufactured and sold in Baltimore upwards of 500,000 feet during the year 1882.

18 Q. State, if you please, what amount of capital you have invested in the works in Baltimore, and in introducing the belting into use in the United States.

76 A. About £10,000 thus far, but such is the demand for my belt in the United States that I have contracted to enlarge our works in Baltimore to double its producing capacity.

19 Q. State, if you please, what advantages your belt has as compared with india-rubber belting or leather belting?

A. I will begin with leather belting. It differs from leather belting in many prominent points. First. It is absolutely straight and alike over the whole belt, without joint or splice from end to end, and, being thus all alike, it never gets crooked or runs in a snaky fashion, but transmits the power always the same, there being no loss of power due to or arising from one edge of the belt being slack and the other tight, as is always the case with leather. It has nearly double the gripping power and strength of leather, and being free from splices it transmits the power in a smooth, even manner without any jump, which is shown clearly when driving dynamos for electric lighting.

This is clearly exemplified in the fact that it was the only kind of belt on exhibition there out of many others that was awarded a premium for driving dynamos at the great international electro-technical trial, held at Munich, in 1882, as well was it the only belt awarded a prize at the great international engineering exhibition, held at Tynemouth, England, in 1882, where it was awarded the

silver medal of that exhibition for the steadiness with which it drove the dynamos for electric lighting, where the belt was in competition with many other belts.

It also differs from and is superior to leather belting, in that unlike leather it will work in any situation, whether wet or dry, hot or cold, where a belt can be used. Its superiority over leather in climatic changes is exemplified in the fact that as soon as it was introduced in the great corn-fields of California and the west for agricultural purposes it at once assumed a first position by rapidly superseding every other kind of belt in that region. It is further exemplified by the fact, which can be shown by letters now
77 in the Baltimore office from the great and deep mines, such as the "Comstock" and the "Silver King" mines of the West, where these belts have to work deep down in the earth amidst the hot water exuding from the walls and surfaces of these mines. In ordering belts for these mines the parties in their letters say that nothing that they have tried in these exceptional positions give the satisfaction that does the Gandy belt. They say they have tried in those damp, hot situations both leather, rubber, and other kinds, none of which will do the work the Gandy belt does.

In respect to leather, it is not only very much superior in its driving powers and durability, but at the same time it is very much cheaper and effects a large saving to users of belting; hence the rapid increase in the demand for this belt. Its use in mills and for other purposes effects a very large saving in the quantity of leather consumed, which can be diverted to other necessary and useful purposes in the arts, such as boots, shoes, harness, and the like, which must necessarily tend to keep down the ever-increasing price of leather.

As to the india-rubber belt, it differs essentially in several most important points; first, in the manufacture of rubber belts, the cotton cloth, which is the base of the rubber belt, has to pass several times over a heated cylinder to dry out the moisture before the cloth will take the gummy mixture of rubber, which is to unite or cement together the folds of the cloth forming with the rubber the rubber belt. This drying process not only dries out the moisture of the atmosphere that is in the cloth, but also the natural "life oil," or moisture of the cotton filament itself, thus rendering it not only brittle by the kiln drying, but puts it in condition to rapidly absorb moisture, and this absorbing goes on immediately the rubber belt is finished and becomes an agent to disintegrate the belt. It occurs thus: This high-dried cloth, not being saturated by but merely coated with the rubber, takes up moisture, which, in a short time, causes what are termed air-puffs in the belt, and these, as they pass
78 round the pulley, becoming compressed, act as a wedge and split off the rubber from the cotton cloth. This again soon causes the rubber to peel off, which ends in an early destruction of the belt from that cause. The rubber belts, as is well known, unlike the Gandy, will not work as crossed belts, for the reason that the two surfaces running across each other cause an abrading action to take place at once, and the rubber peels off by reason of the friction be-

tween the two surfaces, as will be understood by any schoolboy who uses rubber to erase pencil marks; thus, the so-called rubber belt, denuded of its rubber, rapidly absorbes moisture, and when crossed is very rapidly disintegrated. Rubber belts, when put to work in wet situations, will not grip the pulley, but slip by reason of the moisture upon the surface of either the belt or the pulley.

A still further objection to the rubber is the fact that when working in damp places it absorbs moisture, which rapidly rots the cloth, and thus the belts go to pieces.

From what I have already said it will appear that my belt is very much stronger, is very much more durable, and is very much more efficient in transmitting power, and it effects a very great saving in india-rubber, which is getting to be a more and more scarce and dear commodity.

20 Q. State, if you please, what practical knowledge you have about the manufacture of india-rubber belting.

A. Before I commenced to manufacture or experiment upon belting of any kind my business for the six preceding years had been that of dealing largely in canvas, and amongst other kinds the canvas used by rubber manufacturers, and in the course of such business I had access to several large works manufacturing rubber belting from the cloth I supplied them with. I thus became intimately acquainted with the whole process of manufacturing rubber belts, and also with the defects of such belting, and which, indeed, was one of the incentives that induced me to experiment and try to produce a better belt without the agency of the rubber, and
79 which finally resulted in the production of my belt. In addition to the objections I have already pointed out to the india-rubber belts, there are others, but they are sufficiently and correctly stated in the testimony of Mr. Macwatty and Mr. Phillipps.

21 Q. To what features in the construction of your belt do you attribute its success?

A. To its method of manufacture, which may be shortly stated thus: The weaving of the cloth hard to obviate, as far as it is possible to do, the tensile stretching of the belt when working — the special manner in which it is folded, so as to insure the protection of the selvages of the canvas and the smooth edges of the belt when finished; the uniting of the different folds or plies together by rows of stitching, so as to bring the several plies of the cloth in absolute contact, and, finally, the application of an oil or a mixture of oils to the belt, for the purpose of softening or rendering pliable the hard-woven canvas, so that it will accommodate itself readily to the form of the pulley and prevent cutting and at the same time to protect it against the effects of damp or atmospheric changes.

It is unnecessary for me to describe the manner of folding my belts, as it is sufficiently shown in the specimens of belts already put in evidence.

22 Q. Please to state whether or not, down to this present time, you have ever seen or heard of any belt that is like yours and that had been made or invented previous to the invention and completion and reduction to practice of your belt.

A. No; I have not, notwithstanding the fact that in the introduction of my belt I have travelled over the whole of Europe and a good part of the United States, nor have I ever met a man who claimed to have seen such a belt prior to my inventing and making it.

23 Q. State, if you know, whether there is any other person, firm, or company in the United States of America manufacturing your belt.

A. So far as I know or have any information there is only one party or company manufacturing the belt in the United States; that company is known as the Maine Belting Co.; it has its
80 place of business in Philadelphia; it was recently organized by Mr. B. M. Plummer, who came in my employ here in Liverpool and learnt, under my special instruction, all about the manufacture of my belt. I then sent him to Baltimore as the manager of my works there; he continued in my employ then as such manager somewhere about a year, when I dismissed him for want of confidence in the management of the business. He thereupon proceeded to organize the company to manufacture belting precisely like mine, and the parties who joined him in that organization were well acquainted with all the facts and circumstances which I have related.

24 Q. State, if you please, whether you have obtained any patent or patents in the United States for any improvements upon your belt and in the method of making it.

A. Yes; I obtained a patent in the United States on June 1st, 1880, for an improvement upon this belt and upon the method of making it, and I afterwards obtained some patents for machinery used in the manufacture of my belt, the date of which I do not remember.

25 Q. State whether or not the belt manufactured by Mr. Plummer's company, The Maine Belting Company, is the same as the improved belt described in your patent of June 1st, 1880, and whether Mr. Plummer has knowledge of that patent.

A. The belt manufactured by Mr. Plummer is precisely like my belt, the only difference being that Mr. Plummer uses one thread more in the weft of his canvas than I do in mine, and he was well aware of the existence of the patent of June 1st, 1880, which was granted before the works in Baltimore were established, and all the belting made in the works under the supervision of Mr. Plummer embraced and included the improvements described in that patent.

26 Q. I place in your hand the specification accompanying British letters patent No. 140, granted to William Edward Newton January 26th, 1858. Please to state whether you have read and fully considered it.

A. I have.

81 27 Q. State, if you please, whether you have ever seen or heard of a belt made upon the plan described in that patent.

A. I have never seen or heard of a belt made upon the plan described in this patent, but I have seen belts composed of several thicknesses of canvas stuck together with glue and various other cements,

but never save one that was stuck together with a cement made of boiled oil and umber.

28 Q. State, if you please, of what practical value a belt made upon the plan described in Newton's specification would be.

A. I know of my own practical experience that such a belt would be of no practical benefit whatever. I have seen belts composed of canvas stuck together with the strongest cement that could be found, and they invariably go to pieces as soon as they are put in use on pulleys. Many attempts have been made to make such belts, but without success, even where the strongest and most cohesive cement has been used. The idea of sticking the canvas together with boiled oil and umber, which does not make a cement of any strength, is simply absurd. The objections I have pointed out to a belt made upon the plan of Newton's specification I know to be well founded from my own experience, and there are other objections to such a belt, which are, however, fully stated in the testimony of Mr. Macwatty and Mr. Phillipps, which I have read and which I know to to be true from my own practical experience.

29 Q. I place in your hands the specification accompanying British letters patent No. 949, dated April 18th, 1861, granted to Charles Stevens; state, if you please, whether you have read this specification and fully considered it.

A. I have read it and I have fully considered it.

30 Q. State, if you please, how the belt described or suggested in that patent differs from the Gandy belt.

A. In addition to the distinction between my belt and the belt described in the Stevens patent, pointed out in the testimony of Mr. Macwatty, Mr. Phillipps, and Mr. Brown, all of which I have
82 read and know to be true, I desire to say, first, that the Gandy belt is made of cloth that is woven of an extended width, with one single shed and one single warp, which is by that single operation driven up hard and held hard or tight; then, after the cloth is woven hard, it is folded and stitched, and thus forming the different plies, when folded, of a cloth that has been held up hard in the weaving and, hence, cannot slacken back to a soft cloth. In contradistinction to this, the Stevens belt is woven the different thicknesses or plies in one operation, by which it is impossible to hold each thickness hard or tight while the other thicknesses are being woven. To exemplify this, I will briefly describe the manner of weaving such belts as Stevens', thus: In weaving such belts of, say, four plies or thicknesses, the whole of the warps of such four plies or thicknesses are wound on one beam; then the first set of warps are cast upward into a shed for the shuttle to pass through to form the first thickness or ply; the weft is then passed through that shed and the reed drives it home; the second set of warps to form the second ply or thickness, are then cast upward to form the second shed for the shuttle to pass the weft through, when the reed again drives this second weft home; the third set of warps to form the third ply or thickness are then cast downward to form the third shed for the weft to pass through the third time, which again is driven home by the reed; the fourth and last set of warps are then cast downward to form the fourth or lower

shed for the weft to pass through and form the fourth ply or thickness, which the reed again drives home. It will thus be seen that during the last three strokes or motions of the loom the first set of warps has remained in a state of quiescence, but subject to the vibration caused by the reed driving up each successive three other strokes, and such vibration has caused the first set of warps to ease off and allow the weft to give out the tightness that was imparted to it by the reed, and this is more especially the case as such first set of warps have not been, so to speak, locked over the first weft to keep
83 it in the position to which it was driven by the reed, and this easing off takes place with each successive set of warps, as each has to remain still after the weft is passed through and driven home until each of the other three sets of warps has had the stroke given to it. Thus, each set has to take the vibrations caused by the impact of the reed in each of the three successive strokes on the other three sets, while that special set is in a state of rest.

On a separate beam are wound several warp threads so as to form locking threads or warps, the function of which is to pass up every fourth stroke or completely down every fourth stroke, as the case may be, so as to form a through and through set of locking warps to lock or bind the four thicknesses or plies already woven firmly together, independent motion being given to these by the heddles. It will thus be seen that there are five clear and distinct motions in weaving a belt like Stevens', during which separate motions to the several thicknesses or plies it is impossible, as shown, to hold the weaving of each ply or thickness up tight or hard, resulting in the production of an article that is of itself soft in the weaving, and hence liable to continuous stretch when at work driving machinery.

This same description of woven belt has been woven of various materials, such as jute, hemp, flax, wool, and cotton, by many makers, several of whom have abandoned the manufacture, as the belt when produced proved to be of little or no value for driving machinery.

The foregoing is the best-known method in England of weaving this belt or band. The method I have described is substantially the same as that described in the Stevens patent, varying from it only in some unimportant details of the locking the warps and plies together. The belt produced by Stevens' method of weaving is exactly like the specimens illustrated by Complainant's Exhibit "Stevens Belt."

It is in no sense like my belt, nor is it possible to make a belt described by the Stevens patent that could be used as a substitute for my belt.

84 31 Q. Please to examine the specification and drawings now shown you, making part of the United States letters patent No. 149,805, dated April 14th, 1874, and state, if you please, how the belt described in that patent differs from the Gandy belt.

A. I have read and considered the specification referred to in your question. The belt described is merely an india-rubber belt, and is unlike my belt as an ordinary india-rubber belt, excepting that in making this belt the canvas which forms the foundation

of the belt is stitched together after the rubber is put on and before vulcanizing, but the belt depends for its value upon the india-rubber, and is subject to all the objections to which ordinary india-rubber belting is liable, and which have been pointed out by myself, Mr. Macwatty, Mr. Phillipps, and Mr. Brown in giving their testimony in this case. Without the india-rubber this belt would be of no value whatever for driving machinery.

32 Q. I call your attention to the following clause in the specification making part of your application for a patent for this invention, as filed in the Patent Office December 1st, 1877:

"I would remark that I am perfectly aware that belts or bands of cotton canvas or duck are not new, as such have been made previous to my invention by folding and sewing, the sewing-machine being used for such sewing or stitching. I myself have manufactured and sold belts so made for over four years."

Did you mean by that statement that others had made and sold such belts as well as yourself, or did you mean that you yourself had made and sold such belts in England for upwards of four years previous to your application for this patent in the United States?

A. The statement which you have read from the specification conveys a wrong impression. The word "invention" raises the inference that others had made the invention besides myself, which
85 is not true in point of fact. The word should be "application," for I was the first to make a belt of cotton canvas folded and stitched together as I have described, and what was intended to be expressed in the specification was simply that I myself had been manufacturing in England, by way of experiment, and also for sale, belts made of soft cotton canvas, and also, more or less, of hard canvas, for a period of about four years before I made this application in the United States. I never saw or heard of a belt like mine before I commenced my experiments in 1873, nor did I know of such a belt being made or sold by any one else besides myself at the time this application was filed, nor do I know now or believe that at the time this application was filed any one besides myself had ever made or used a belt substantially like mine. At the time this application was prepared I gave my English solicitor a description of what my invention was and how it had grown up from its inception to its perfected state, as I have already described, and in writing this specification he has inadvertently raised an erroneous inference, as I have explained. As I understand my invention, and as I gave it to my English solicitor at the time this specification was prepared, it consists of uniting the four following elements: First, the canvas must be hard woven; second, the canvas must be folded so as to bring the selvage inside and leave the edges of the belt smooth; third, the several plies of canvas must be thoroughly stitched together, so as to bring them in absolute contact. Fourth. The belt must be saturated with an oil, or a mixture of oils, that will soften and continue the hard canvas in a pliant state, so as to prevent it cutting on the pulleys, as I have repeatedly stated. These four elements combined in the belt are necessary to make it of any practical value, and it is for this that I am now, and have been since 1877, seeking for a pat-

ent in the United States. Whatever there may be in the
86 specification from which you have quoted that embraces or includes more than this is erroneous and superfluous.

MAURICE GANDY.

Subscribed and sworn to the 2d day of December, 1883, before me—

[U. S. SEAL.] W. P. PAULL,
Vice and Deputy Counsel of the United States of America at Liverpool.

LIVERPOOL, 20*th December*, 1883.

WILLIAM BENN, a witness produced on behalf of complainant, being examined by Mr. BROADNAX, testifies as follows:

1 Q. State your name, age, residence, and occupation.

A. My name is William Benn. I am forty-two years of age, and reside in Liverpool. I am in the employ of Mr. Gandy, as manager of the commercial department of his belt works in Liverpool. I have, however, nothing to do with the manufacture of the belt.

2 Q. State, if you please, how long you have been in the employ of Mr. Gandy.

A. Since January, 1870.

3 Q. State, if you recollect, when Mr. Gandy commenced to manufacture belts of cotton canvas substantially like the specimen now shown you, "Complainant's Exhibit Gandy's Original Soft Belt."

A. He commenced the manufacture of belting like this specimen in 1873.

4 Q. State, if you please, whether Mr. Gandy, after he commenced to experiment in the manufacture of such belts in 1873, continued to work at it until he had the belt perfected, as it appears substantially in the specimen now shown you.

A. Yes, sir; he did, and he has continued to manufacture the belt from that time to this.

87 Specimen offered in evidence and marked "Exhibit Benn."

5 Q. State whether it was ever any part of your duty to travel over England and solicit orders for this belt.

A. It was; I commenced to travel and solicit orders for canvas and the belt incidentally in England and Scotland in the summer of 1874, and I continued to solicit orders in that way, off and on, for probably two years; but the belt at that time was still in a very imperfect condition, and was folded and sewed by hand—the sewing-machines being worked by foot power; it was not until 1877 that the invention was fairly perfected.

6 Q. State, if you please, whether or not during the time you have been connected with Mr. Gandy in the sale and manufacture of this belt you have ever seen any belts made of canvas that were substantially like it, and that had been made previous to the time that Mr. Gandy had perfected his belt.

A. No, sir; I never did, and I think if such a belt had existed, I

should have come across it in my travels, or should have heard of it at least, which I never did.

WILLIAM BENN.

Subscribed and sworn to the 20th day of December, 1883, before me—

[U. S. SEAL.]

W. P. PAULL,
Vice and Deputy Consul of the United States of America at Liverpool.

LIVERPOOL, *December* 20, 1883.

THOMAS PUGH RICHARDS, being called as a witness on behalf of complainant and examined by Mr. BROADNAX, testifies as follows:

1 Q. State you name, age, residence, and occupation.

A. My name is Thomas Pugh Richards; I am forty-two
88 years of age, and reside at Liverpool; at least I carry my business on at Liverpool, and by occupation I am an engineer and manufacturer of machinery.

2 Q. State how long you have been engaged as an engineer and manufacturing and using machinery.

A. Twenty-eight years.

3 Q. State whether you are acquainted with Maurice Gandy; and, if so, for how long you have been acquainted with him.

A. Yes; I know Mr. Gandy; I have known him somewhere about six years to the best of my recollection.

4 Q. State whether you are acquainted with the Gandy belt—I mean a belt like Complainant's Exhibit, marked "Fleming's Exhibit;" and, if so, please to state for how long you have known such belt.

A. I am acquainted with the belt; I commenced to use it about a year before I became acquainted with Mr. Gandy.

5 Q. State, if you please, to what extent you have sold or used these belts.

A. I cannot tell how many; but I have sold and used a considerable number.

6 Q. State, if you please, whether or not the belts you have sold and used have given general satisfaction.

A. They have; I have never had a single complaint, and I have had a great many renewed orders; and the first belt I put in use was a main driving belt, and has been in use for five days every week since the time it was put on, which must be now somewhere about seven years ago.

7 Q. State whether or not previous to your becoming acquainted with the Gandy belt you had ever seen a canvas belt that bore any resemblance to the Gandy belt.

X. No; I never did.

8 Q. I place in your hands the specification accompanying British letters patent No. 949 of 1861; please to read it, and state, if you please, whether the belt described in that patent is the same, or substantially the same, as the Gandy belt.

89 A. No, sir; it is an entirely different belt, and is in no sense a substitute for the Gandy belt.

9 Q. I place in your hands also the specification accompanying British letters patent No. 140, of 1858; please to read it and state, if you please, whether the belt described in that patent is substantially the same as the Gandy belt.

A. I have read the specification you place in my hands, and I find described a plan of making a belt which consists substantially of several layers of canvas stuck together with a cement made of umber and oil, and with one row of stitching along one edge of the belt. I do not believe it is possible to make a belt upon this plan that would be of any practical value, and it is certainly not like the Gandy belt. It is not folded, stitched, or oiled like the Gandy belt, and has none of its essential qualities, and it would be utterly useless as a substitute for the Gandy belt.

10 Q. I place in your hands the specification accompanying United States patent No. 149,805, dated April 14th, 1874; please to read it and state whether or not the belt described by it is substantially like the Gandy belt.

A. I have read the specification you place in my hands, and I find a description of a novel method of making an india-rubber belt, but the belt is essentially an india-rubber belt, depending upon the canvas for its strength, like all other india-rubber belts, and is no more like the Gandy belt than is the ordinary india-rubber belt.

11 Q. State, if you please, how the Gandy belt compares in point of quality with leather or india-rubber belting.

A. It is equally as good as leather for any purpose, and for many purposes it is better and more durable, and very much cheaper, and is almost very much more durable than a rubber belt, and will work in many places where neither rubber nor leather will
90 work—in short, I think Mr. Gandy's belt a very great acquisition to the public.

THOMAS PUGH RICHARDS.

Subscribed and sworn to the 20th of December, 1883, before me—

[U. S. SEAL.]

W. P. PAULL,
Vice and Deputy Consul of the United States of America at Liverpool.

ROBERT DEX HARRISON, a witness produced on behalf of complainant, and examined by complainant's counsel, testified as follows:

1 Q. State your name, age, residence and occupation.

A. My name is Robert Dex Harrison; I am thirty-seven years of age, and reside at Bartley, in Yorkshire, England, and I am a manufacturer of leather belting.

2 Q. State, if you please, how long you have been engaged in manufacturing leather belting.

A. For thirteen years.

3 Q. State whether you are acquainted with Maurice Gandy.

A. Yes; I know Mr. Gandy.

4 Q. State, if you please, whether you are acquainted with a certain canvas belt known as the Gandy belt, such as the specimen now shown you, marked Complainant's Exhibit W. Benn.

A. Yes; I do.

5 Q. State, if you please, how long you have known such belt.

A. About five years.

6 Q. Please to state whether or not you ever saw a belt like the Gandy previous to the time you saw Mr. Gandy's belt.

A. No; I never did.

7 Q. What, in your opinion, is the practical value of the Gandy belt as compared with leather belting?

91 A. I think the Gandy belt for many purposes is superior to leather belting.

8 Q. I place in your hands the specification and drawing making part of the United States patent No. 149,805, dated April 14, 1864; please to read it and state whether it describes a belt substantially like the Gandy belt.

A. No, sir; it is in no sense like the Gandy belt.

9 Q. I place in your hands the specification accompanying British letters patent No. 949, of 1861, granted to Charles Stevens; please to read it and state whether, in your opinion, it describes a belt substantially like the Gandy belt.

A. No, sir; it does not. This belt is quite common. I have seen it very often, but it is in no sense a substitute for the Gandy belt.

10 Q. I place in your hands the specification accompanying British letters patent No. 140, of 1858, granted to William Edward Newton; please to read it and state whether, in your opinion, a belt made upon the plan of that patent would be of any practical value.

A. I have read the specification and am of the opinion that a belt made as described in this patent would be of no practical value; it would disintegrate in a short time; it has none of that strength and stability necessary to make a practical belt.

11 Q. State, if you please, whether you have ever seen any belting made upon the plan described in the specification of Newton, referred to in your last answer.

A. No, sir; I never have.

12 Q. State, if you please, whether, in your opinion, the belt described in the Newton patent has any of the essential features of the Gandy belt.

A. No, sir; I don't think it has.

13 Q. State, if you please, what opportunity you have to see different varieties of belting in operation in England.

A. The town of Bartley, in which I live, is a large manufacturing town, and indeed the whole district adjacent to Bartley is engaged in manufacturing different varieties of goods, and use great quantities of belting, and I have, moreover, visited most of the

92 large manufacturing towns in England and am familiar with the different varieties of belts in use.

R. D. HARRISON.

Subscribed and sworn to the 27th day of December, 1883, before me—

[U. S. SEAL.] W. P. PAULL,
Vice and Deputy Consul of the United States of America at Liverpool.

FRANCIS FLEMING, a witness called on complainant's behalf, being examined by complainant's counsel, testifies as follows:

1 Q. Please state your name, age, residence, and occupation.

A. My name is Francis Fleming; I am forty years of age; I reside at West Grove Mills, Halifax, Yorkshire, England, and I am a leather-belt manufacturer by occupation.

2 Q. State, if you please, how long you or your firm have been manufacturing or dealing in belting.

A. My firm of Thomas Fleming & Son have been manufacturers of belting since 1797. I have myself been connected with the firm for the past twenty-seven years. I began when I was fourteen years of age and have continued down to the present time.

3 Q. State if you are acquainted with Maurice Gandy.

A. I am.

4 Q. State if you are acquainted with the canvas belting manufactured by Maurice Gandy.

A. I am; and have been for about seven years.

5 Q. Please to examine the specimens of belt now shown you and state if you recognize it as a specimen of the belt referred to in your last answer.

A. It is a specimen of the belt known to me as the Gandy belt.

Specimen offered in evidence and marked "Fleming's Exhibit."

93 6 Q. Please to state whether or not you ever saw a belt like the Gandy belt previous to the time that Mr. Gandy commenced the manufacture of the same.

A. No; I never did; nor did I ever hear of such a belt previous to that time.

7 Q. What, in your opinion, is the practical value of the Gandy belt as compared with leather belting?

A. In driving most machinery I should consider it equal to leather, and in damp places where the atmosphere suddenly changes it is better than leather.

8 Q. I place in your hands the specification accompanying British letters patent No. 140 of 1858, granted to William Edward Newton. Please to read it and state whether, in your opinion, a belt made upon the plan of that patent would be of any practical value.

A. Practically for belting it is useless.

9 Q. State, if you please, whether you have ever seen any belting made as described in this patent of Newton's.

A. Never.

10 Q. I place in your hands the specification accompanying British letters patent No. 949 of 1861, granted to Charles Stevens. Please to read it and state whether, in your opinion, it describes a belt substantially like the Gandy belt.

A. Certainly not, in no respect.

11 Q. State, if you please, how it differs from the Gandy belt.

A. Well, to begin with, the belt described by Stevens' patent has no novelty, such belts having been made for many years. The belt differs from Gandy's belt in that it is not made of folded canvas, stitched, and oiled, and, as a substitute for the Gandy belt, I should say that it has no practical value.

12 Q. I place in your hands the specification and drawing, making part of United States patent No. 149,805, dated April 14th, 1874. Please to read it and state whether it describes a belt substantially like the Gandy belt.

A. I have read it, and am of the opinion that it does not
94 describe the Gandy belt, or any belt substantially like it. The patent is for a novel method of making india-rubber belts. It really has none of the essential qualities of the Gandy belt, and would in no just sense be a substitute for it.

13 Q. Referring again to Newton's British patent No. 140 of 1858, please to state whether, in your opinion, that specification describes a belt having any of the essential features of the Gandy belt.

A. It certainly does not.

FRANCIS FLEMING.

Subscribed and sworn to the 27th day of December, 1883, before me—

[U. S. SEAL.]

W. P. PAULL,
Vice and Deputy Consul of the United States of America at Liverpool.

UNITED STATES CONSULATE, LIVERPOOL.

I certify that on the twentieth day of December, A. D. 1883, Maurice Gandy, William Benn, and Thomas Pugh Richards personally came before me at this consulate, and their several and respective depositions hereto annexed being read over to them severally and respectively in my presence, they then and there severally and respectively signed and swore to same in my presence.

I further certify that on the twenty-seventh day of December, A. D. 1883, Robert Dex Harrison and Francis Fleming personally came before me at this consulate, and their several and respective depositions hereto annexed being read over to them severally and respectively in my presence, they then and there severally and respectively signed and swore to same in my presence.

Given under my hand and official seal this 27th day of December, A. D. 1883.

[Seal of the United States of America.]

W. P. PAULL,
Vice and Deputy Consul of the United States of America at Liverpool.

95 NEW YORK, *February* 11, 1884.

HARVEY W. PEACE, a witness produced on behalf of complainant, being duly sworn, in answer to interrogatories propounded by Mr. BROADNAX, testified as follows:

1 Q. State your name, age, residence, and occupation.

A. Harvey W. Peace; am fifty-two years of age; reside at No. 105 Ainslie street, Brooklyn, E. D.; am a saw manufacturer; am president and superintendent of the Harvey W. Peace Company.

2 Q. State whether you are acquainted with a certain belt made of folded cotton canvas, and known as the Gandy belt, like the specimen now shown you, marked "W. Benn."

A. Yes, sir; I am.

3 Q. Please to state what experience you have had in the use of this belt, if any, and state what you know as to its novelty.

A. I have used it in my works continually since the fall of 1880. I never saw a belt like it until I adopted it in my factory in 1880.

4 Q. What satisfaction does the belt give you, as a practical belt for driving machinery, and how does it compare with leather belting?

A. I like it much better than leather belting for some purposes, namely, damp or wet places. I think it runs much better than leather belt, as it doesn't stretch or get uneven by tension. It retains its shape much longer than the leather belt, and I think is much more durable. In fact, my experience is it will last double the time leather belt will.

5 Q. Are you acquainted with Marice Gandy, the inventor of this belt, or with any one engaged in the manufacture of the belt?

A. I am not; never saw any of them to my knowledge.

6 Q. What experience have you had in using belts as a manufacturer?

A. I have been using belting for driving machinery ever since I was twelve years old, and I have myself been a manufacturer for twenty years.

96 7 Q. State, if you please, whether or not, in your opinion, this belt fills or supplies an important want to manufacturers as a driving belt.

A. It does, where heavy work and rapid motion is concerned. It also effects a great saving of leather.

HARVEY W. PEACE.

Sworn to and subscribed before me this 11th day of February, A. D. 1884.

J. EDGAR BULL,
Notary Public, N. Y. Co., N. Y.

NEW YORK, *February* 26, 1884.

W. A. D. BAUMAN, a witness produced on behalf of complainant, being duly sworn, in answer to interrogatories propounded by Mr. BROADNAX, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. W. A. D. Bauman; am 40 years of age; reside in Jersey City, New Jersey; am foreman of the bolt factory of W. Ames & Co., Jersey City, New Jersey.

2 Q. State whether you are acquainted with Maurice Gandy, or any one connected with the Gandy Belting Company.

A. I am not.

3 Q. State how long you have been foreman of the Ames Bolt Works, and whether you have in use in such factory one of the Gandy belts; and, if yea, state how such belt compares with leather belting, and whether it is a new manufacture.

A. I have been foreman here for six years. I have in use in this factory six Gandy belts. I have one six-inch belt which has been in constant use for three years, and another six-inch belt in use nine months. The belts are used in operating spike, bolt, and nut machines, and they operate in very hot places, and give
97 excellent satisfaction. I think for large driving-belts they are superior to a leather belt. They do not get rotten on our machines as quick as the leather belts do. I have in use a good many leather belts in the factory, but I am now replacing them with cotton belts as fast as they give out, as they are cheaper and give better satisfaction in our factory. These belts also draw straighter and stretch more evenly than the leather belts, and hug the pulley better. I recognize the specimen marked Exhibit W. Benn as a piece of the same kind of belt I am referring to. The belt is a new manufacture as far as I know. I never saw one like it before I saw these.

W. A. D. BAUMAN.

Subscribed and sworn to before me this 26th day of February, 1884.

J. EDGAR BULL,
Notary Public, N. Y. Co., N. Y.

NEW YORK, *February* 26, 1884.

CLARENCE DELAFIELD, a witness produced on behalf of complainant, being duly sworn, in answer to interrogatories of counsel testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. My name is Clarence Delafield; am fifty-two years of age; reside at New Brighton, Staten Island; am a civil and mechanical engineer.

2 Q. State how long you have been a mechanical and civil engineer, and what, if any, experience you have had in the use of belts for driving machinery.

A. I have been a mechanical and civil engineer for thirty-four years, and I have used belts for driving machinery more or less during the whole of that time.

3 Q. State if you are acquainted with Maurice Gandy, the
98 complainant herein, or with any of the members of the Gandy Belting Company.

A. I am not.

4 Q. Please to state whether you have examined the cotton belting known as the Gandy belt, and of which the specimen now shown you and marked "Exhibit W. Benn" is a sample.

A. I have.

5 Q. How, in your opinion, does this belt compare in point of efficiency and durability with india-rubber and leather belting?

A. I have had no experience in the use of this belt, but would anticipate that when exposed to heat it would be decidedly superior to the rubber belt, and where exposed to alternations of moisture and dryness would prove superior to the leather belt. The surface friction of the Gandy belt should be superior to the leather belt, and decidedly more durable than the rubber belt. Speaking of the belt generally, and judging from my experience in such matters, I should think this belt would be a thoroughly efficient and durable belt. In machine-shops and upon agricultural implements I should think the belt would be invaluable, and in all places of exceptional exposure to extreme heat and cold, moisture and dryness.

6 Q. State what you know as to the novelty of the belt, and what, if any, experience you have had in comparing patentable inventions and in testifying upon the subject as an expert.

A. I have taken out a great many patents and made application for a great many more, and I have testified in patent cases a number of times as an expert; in fact, I have had a good deal experience of that kind during the last twenty-five years. I never saw or heard of a belt like this until I saw this belt.

7 Q. I place in your hand the specification making part of British letters patent No. 140, of January 26, 1858, granted to William Edward Newton, for a new or improved fabric intended principally as a substitute for leather, and also a copy of British letters patent No.
949, of April 18, 1861, granted to Charles Stevens, for im-
99 proved bands for transmiting motion to machinery, and also copy of the specification and drawings of the letters patent of the United States, granted to Edward A. Street, for improvements in machine belting. Please state whether you have read all these specifications and fully considered the manner of making and the nature of the belt produced described in these several patents respectively.

A. I have read all of these specifications, and I have thoughtfully considered the belts described by them.

8 Q. State, if you please, whether, in your opinion, the belt described in either of the patents is the same, or substantially the same, as the Gandy belt.

A. From my experience in the use of belts I should judge that the belt described in the Newton specification would be of no prac-

tical use in driving machinery. In his specification Newton claims "a fabric composed of cotton or other fibrous substance, woven or unwoven, saturated or coated with a compound of linseed oil and burnt umber." This combination depends for its value on whatever merits linseed oil and burnt umber boiled together may possess. As a paint it is good, if used hot, but its tenacity is neither greater nor better than white lead and other paints, and is certainly not to be compared to the longitudinal seams of sewing as a means to cause the plies of the belt to adhere, and would add neither tensile strength nor endurance of friction to canvas, and hence could not and would not be used by Gandy as of any value whatever in making his belt, and does not apply, either partially or as a whole, to the invention of Gandy. Gandy's belt is a compound fabric, composed of hard-woven canvas, folded to protect the selvages and form smooth edges to the belt. The several plies of canvas are thoroughly stitched together, the stitching itself adding greatly to the strength of the belt, in addition to the strength occasioned by drawing the several plies of canvas closely upon each other. The element of hard-spun and hard-woven canvas is made very effectual in the Gandy belt by making it of several plies of this variety of canvas firmly united, the one upon the other, by the stitching, and the element of pliability is obtained by the oil with which it is treated in its manufacture. The belt of Newton has none of these qualities. Assuming a belt to be made upon the plan described in Newton's specification and put upon a pulley running at comparatively high velocity, the belt, I think, would go to pieces in less time than it would take to make it. The oil and umber being dried would be wholly insufficient to hold the several laminæ of the belt together, and would, moreover, I think, crumble to the consistency of powder, leaving the belt in several separate laminæ and utterly useless. The belt of Newton is not folded like the Gandy belt. It is not stitched like the Gandy belt. It is not composed of several laminæ of hard-woven canvas. It is not softened by oil. Indeed, it is as unlike the Gandy belt as one belt can well be unlike another. It has only one element of the Gandy belt in it, and that is the element of canvas. In every other respect it is wholly unlike it, and it seems to me to be as completely worthless as the Gandy belt is completely effectual. Certainly no practical manufacturer would think of making or using a belt like the belt suggested in the Newton specification. The patent is really for a fabric, and the belt is a mere suggestion of one of the uses to which the fabric might be put, but it is a use that no one familiar with the qualities necessary to make a driving belt for machinery would even suggest.

Stevens' patent is not for a belt, but for the process of making a belt. His specification claims "the mode of weaving, hereinbefore described, by which means I obtain my improved bands or straps for communicating motion to machinery and other purposes." Stevens' belt, as produced by his patented process, first, from my knowledge of weaving, I should deem it impossible to throw the series of wefts in forming several plies woven in one operation close

and hard, as demanded in the production of a hard-woven canvas, thus leaving the belt in a condition to stretch constantly until utterly destroyed by use. It is impossible to avoid the selvage edge being exposed to the friction of shifting forks, thus wearing
101 the belt, leaving the several plies disconnected, and destroying its integrity in a very short time. There is no evidence of longitudinal lines of sewing used in the Stevens belt, nor of the use of oil or other material as a protection from moisture, acids, and other usual destructive influences. Therefore, in the hard-weaving, protection of selvage, additional strength and compactness caused by the longitudinal and close lines of sewing, and in the protection from internal destruction by friction of fibre, and exterior destruction by moisture, acids, etc., composing the value of the Gandy belt, I deem the Stevens belt entirely different in detail and in combination, and impossible to substitute for the Gandy belt.

Now, as to the Street patent, it claims "a machine belt made of woven material formed or made in folds or layers, surfaced, united, and vulcanized." The vulcanizing necessarily refers to the application of rubber, and is deemed an imperative necessity in the manufacture of this belt. There is no reference made to the necessity of a hard-woven belt, nor to the protection of the selvage edges or to the oiling of canvas used in the belt, and would seem to be the ideal of a person inexperienced in the use of belting. The vulcanization of the rubber, as is well known, produced sulphurous acid during the manufacture, which has a tendency to deteriorate and seriously injure the cotton fabric used as a base. Herein is a wide difference, as Gandy protects from all action of acids by the use of the linseed oil; hence the process in the one case tends to destruction and in the other to the protection of the product. The production of rubber belts and their use is too well known to demand an elaborate description, and is all that the Street patent claims to produce. In the Street belt the various plies are coated with rubber solution or rubber compound, and being thus covered and folded or assembled in layers, so as to form a structure of uniform width, having its parts united by stitches, the belt is vulcanized, the rubber between the layers *are* supposed to form a homogeneous connection of the respective parts, and the rows of stitches are for the purpose only of holding
102 the raw materials together until the vulcanization of the rubber shall have completed the belt. It will be seen that it is impossible to draw the stitching together as tightly and compactly as if there were no intervention of the elastic rubber, and the stitching, therefore, adds nothing to the strength or prevention of stretching longitudinally—a vital and very essential difference from the use of the stitching in the Gandy belt. The intervention of the rubber as a cement is necessarily inferior, and the imperative necessity of a cotton fabric as a basis for rubber belts carries by implication the inability of the rubber to withstand tensile strength.

In the construction of the Gandy belt, if between the plies an elastic material intervened, as in the case of Street, it would be absolutely impossible to draw the stitches hard and the several laminæ

together, rendering them inelastic, and would make the belt worthless, so as to make a firm, non-elastic belt.

Gandy no doubt is well aware of the various objections to rubber belting inherent in its manufacture and use. I believe that his belt has thoroughly overcome the objections to india-rubber belting, avoiding the deterioration of the cotton fabric by vulcanization, the destruction by heat and friction of the rubber facing, and the stretching so annoying and expensive by loss of time in taking up the belts.

I do not understand that Gandy supposes that there is anything new in putting two or more plies of canvas together, or in the existence of hard-woven cotton canvas, or the use of oil as an emollient and preservative from the effects of friction and moisture, or in sewing; but when Gandy uses as a base of operation a hard-woven canvas of two or more plies, with close seams of strong sewed string or thread and saturates with oil, he has obtained a combination remarkable for its qualities of tensile strength, freedom from stretching, absence of fibrous destruction from hard weaving, imperviousness to moisture, resistance of acid vapors, good surface for friction on pulley, homogeneity of structure, and economy in first cost.

103 As neither Newton, Stevens, or Street have either such a combination, or are able by their patents to manufacture a belt to compare with the combined features of Gandy's belt, I fail to see where they anticipate him.

CLARENCE DELAFIELD.

Subscribed and sworn to before me this 27th day of February, A. D. 1884.

J. EDGAR BELL,
Notary Public, N. Y. Co., N. Y.

104 *Order for Hearing in Gen. Term in 1st Instance. Filed Apr.* 14, 1884. *R. J. Meigs, Clerk.*

Supreme Court of the District of Columbia. In Equity.

Between—

MAURICE GANDY, Complainant,
and
HENRY M. TELLER, as Secretary of the Interior, and E. M. MARBLE, as Commissioner of Patents, Defendants. } No. 8545.

Bill. Filed May 3d, 1883.

And now, to wit, on the 14th day of April, 1884, the above-entitled cause being brought on for hearing, upon motion of Amos Broadnax, counsel for complainant, no one appearing for defendants, it is ordered that said cause be heard by the general term of this court in the first instance.

CHARLES P. JAMES,
Justice, Sitting in Special Term.

105 *Notice of Motion to Dismiss Bill. Filed Apr.* 26, 1884. *R. J. Meigs, Clerk.*

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, *April* 24, 1884.

Mr. Amos Broadnax, New York city.

SIR: Please take notice that on Monday, the 28th instant, at 10 a. m., or as soon thereafter as counsel can be heard, I shall move to dismiss the bill in the cause entitled Maurice Gandy *v.* Henry M. Teller, Secretary of the Interior, and E. M. Marble, Commissioner of Patents, and shall also move to set aside the order entering the default of the defendants and for leave to make defense in said cause.

The motions are herewith inclosed.

Very respectfully, FRANK T. BROWN,
Att'y for Comm'r.

Service accepted.

106 *Filed Apr.* 26, 1884. *R. J. Meigs, Clerk.*

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, *April* 28, 1884.

Supreme Court of the District of Columbia. General Term.

MAURICE GANDY
v.
HENRY M. TELLER, Secretary of the Interior, and E. M. MARBLE, Commissioner of Patents.
No. 8545. Equity Docket 23.

And now comes Benjamin Butterworth, by his attorney, Frank T. Brown, for the purposes of this motion, and moves the court to dismiss the bill, and for grounds of this motion showeth unto the court as follows:

First. That Henry M. Teller, Secretary of the Interior, is not a proper party to the suit, and E. M. Marble, Commissioner of Patents, has vacated his office, and Benjamin Butterworth, above mentioned, has succeeded him.

107 And for further grounds showeth that the application for a patent upon which this suit is based has no legal existence, having been abandoned by reason of a failure to prosecute the same within two years after the last action therein, of which notice was duly communicated to the applicant.

These matters are within the knowledge of the court and disclosed on the record.

This motion is not made for the purpose of delay, but with [a] view of obtaining justice in the premises.

FRANK T. BROWN,
Att'y for Comm'r.

108 *Filed Apr.* 26, 1884. *R. J. Meigs, Clerk.*

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, *April* 28, 1884.

Supreme Court of the District of Columbia. General Term.

MAURICE GANDY
v.
HENRY M. TELLER, Secretary of the Interior, and E. M. MARBLE, Commissioner of Patents.
No. 8545. Equity Docket 23.

And now comes Benjamin Butterworth, Commissioner of Patents, by his attorney, Frank T. Brown, for the purposes of this motion only, and moves the court to set aside the order entering default on defendants, and grant him leave to plead, demur, or answer, as may seem most advisable in the premises.

And for cause for the granting of this motion the mover respectfully shows to your honor that Henry M. Teller, as Secretary of the Interior, is not a proper party to this suit, and that E. M.
109 Marble, Commissioner of Patents, has resigned his position, and Benjamin Butterworth, before mentioned, has succeeded him.

And for further cause shows that the application for a patent upon which this suit is based has no legal existence, having become abandoned by reason of a failure to prosecute the same within two years after the last action thereon, of which due notice was given the complainant.

The mover herein will undertake to file his proper defense within such time as the court shall direct.

These matters are within the knowledge of the court, and disclosed by the record.

This motion is not made for the purpose of delay, but that justice shall be done in the cause.

FRANK T. BROWN,
Att'y for Comm'r.

110 *Amendment of Bill. Filed Apr.* 29, 1884. *R. J. Meigs, Clerk.*

In the Supreme Court of the District of Columbia. In Equity.

MAURICE GANDY, Complainant,
vs.
H. M. TELLER, as Secretary of the Interior, and E. M. MARBLE, as Commissioner of Patents.

On bill under sec. 4915, R. S., to obtain a patent.

And now, to wit, April 29th, 1884, upon motion of complainant's counsel, Frank T. Brown, appearing for the Commissioner of Patents, it is ordered that complainant have leave to amend his bill *nunc pro tunc* as follows:

Strike out of the title of the cause the words "H. M. Teller, as Secretary of the Interior, and," and after the word patents add the

words, and his successor in office as such Commissioner of Patents for the time being, making the title of the bill as amended read as follows:

Between Maurice Gandy, complainant, and E. M. Marble, as Commissioner of Patents, and his successor in office as such Commissioner of Patents for the time being.

111 Amend also by striking out the second paragraph of the bill and by substituting the following:

That the defendant is a resident of the District of Columbia, and is sued in this action as Commissioner of Patents.

Amend also by striking out of the 17th section of the bill, being the prayer for process, the words "said H. M. Teller, as Secretary of the Interior, and to the," and also the words, "them," substituting therefor the word him, making the prayer for process, as amended, read as follows:

And may it please your honors to grant unto your orator also a writ of subpœna issuing out of and under the seal of this honorable court, directed to the said E. M. Marble, as Commissioner of Patents, and his successor in office as *as* such Commissioner of Patents for the time being, commanding him to appear at a certain time and place in this court to answer the premises, and to stand to and abide such orders and decrees herein as may be consistent with equity and justice, and as may be required of him as such Commis-

112 sioner of Patents, according to the statutes in such cases made and provided.

And it is further ordered that the process of the court heretofore issued in this case be, and the same is hereby, amended to conform to the bill as now amended.

Dated April 28th, 1884.

AMOS BROADNAX,
Complainant's Solicitor.

113 *Motion Made April 30.*

Upon the hearing of this cause upon the foregoing record complainant's counsel, after presenting the whole case to the court, submitted the following motion:

I move the court for leave to amend the specification and claim by stricking out all after the word "duck," in the second clause thereof, and by substituting the following:

"And it consists of a belt composed of suitably hard canvas, of the necessary number of plies to yield the desired strength, and folded to inclose the selvage or edge of the cloth within the body of the belt, leaving both edges smooth and even, the several thicknesses of canvas being then stitched together by rows of stitching, from about one-half to one-quarter of an inch apart, to form the belt; the belt being then saturated with a suitable oil or preparation of oil, to keep the canvas soft and prevent its cutting, and to protect it against the effects of moisture and atmospheric changes.

"The canvas of which the belt is to be made should be hard woven, to make a firm unyielding belt, and the belt should be well soaked

with oil to keep it soft and prevent cutting, and also to protect it against atmospheric changes. The preparation of oil I prefer to use is a mixture consisting of linseed oil, three parts; resin oil, one part; and petroleum oil, one part. After the belt has been thoroughly soaked with oil it should be passed between heavy rollers, to squeeze out the free oil. The belt may be treated with linseed and other oils, and a very good result obtained, but I prefer the mixture above stated; and the canvas may be treated with the oil before forming the belt, but I prefer to make the belt first. To make a belt of great strength the rows of stitching should be about one-quarter of an inch apart, but a good practical belt is obtained by stitching every half or three-eighths of an inch.

"The canvas may be folded by hand or by machinery. I prefer to fold it by machinery, because, in that way, I get it of true, even, and uniform width, and in better condition for stitching.

"After the belt is made it should be dried and covered with a coat of suitable paint, though it may be used without the paint, but is not so durable. If the belt is made of soft canvas it will stretch
114 and be of little practical value, in case it is to endure a heavy strain. To obtain a good belt, therefore, for ordinary use, care should be taken to select a tight, firm, hard canvas to make it of, thoroughly saturating it with the oil, either before or after the belt is stitched.

"Having thus described my improved belt, and the manner of making it, I claim as my invention and desire to secure by letters patent—

"The new article of manufacture, consisting of a belt or band for driving machinery, in which are combined the following elements, viz: First, several thicknesses of cotton canvas of suitable hardness, folded to inclose the edge or selvage of the cloth in the body of the belt, making both edges of smooth folds; second, a series of close parallel rows of stitching, by which the several thicknesses of canvas are drawn hard upon each other to give the belt firmness, strength, and durability; third, saturation of the belt with a suitable oil, or mixture of oils, to prevent the hard canvas from cutting itself, and to protect the belt against dampness or atmospheric changes, substantially as described."

115 *Dismissal of Bill. April* 30, '84. 5 *M. G. T., p.* 59.

Proceedings in General Term.

MAURICE GANDY
vs. } 8545.
Secretary of the Interior H. M. TELLER and Commissioner of Patents E. M. MARBLE. } Equity Doc. 23.

Argued by Mr. Brown, for defendants, and Mr. Broadnax, for complainant, and submitted to the court.

Whereupon the court orders that the bill be dismissed with costs.

116 *Appeal by Complainant to Supreme Court U. S. 5 Min. Gen'l Term, '81. Filed June 13th, 1884. R. J. Meigs, Clerk.*

In Supreme Court of the District of Columbia. In Equity.

Between—

MAURICE GANDY, Complainant,
and
E. M. MARBLE, as Commissioner of Patents, and his Successors in Office as such Commissioner, Defendant. } No. 8545.

On bill under section 4915 of the Revised Statutes to obtain a patent. Appeal to the United States Supreme Court.

The above-named complainant considering himself aggrieved by the final decree entered on the thirtieth day of April, 1884, in the above-entitled cause, doth hereby appeal therefrom to the Supreme Court of the United States, and he prays that this his appeal may be allowed, and that a transcript of the record, proceedings, and evidence in the cause, duly authenticated, may be sent to the Supreme Court.

Dated June 13th, 1884.

AMOS BROADNAX,
Complainant's Solicitor.

Whereupon the said appeal is allowed now here in open court.

117 AUTHENTICATION OF RECORD.

Clerk's Certificate.

CLERK'S OFFICE,
SUPREME COURT OF THE DISTRICT OF COLUMBIA.

I, R. J. Meigs, clerk of the said court, do hereby certify that the writings annexed to this certificate are true copies of originals on file and of record in said office, and that said originals together constitute the record of the proceedings of said court in this cause.

Witness my hand and the seal of said court this 25 day of July, 1884.

[Seal Supreme Court of the District of Columbia.]

R. J. MEIGS, *Clerk*,
By R. J. MEIGS, JR.,
Assistant Clerk.

Justice's Certificate.

I, David K. Cartter, chief justice of said court, do certify the foregoing attestation by R. J. Meigs, clerk of the said court, to be in due form.

Witness my hand and seal this 25 day of July, 188–.

D. K. CARTTER, [SEAL.]
Chief Justice.

Clerk's Certificate to Justice's Official Character.

I, R. J. Meigs, clerk of said court, hereby certify that David K. Cartter, whose genuine signature is subscribed to the foregoing certificate, was, at the time of signing and attesting the same, chief justice of said court, duly commissioned and qualified.

Witness my hand and the seal of said court this 25th day of July, 1884.

[Seal Supreme Court of the District of Columbia.]

R. J. MEIGS, *Clerk*,
By R. J. MEIGS, JR.,
Assistant Clerk.

Endorsed on cover: District of Columbia supreme court. No. 277. Maurice Gandy, appellant, *vs.* E. M. Marble, as Commissioner of Patents, and his successor in office as such Commissioner of Patents for the time being. Filed 12th August, 1884.

122-432

ADDITIONAL EXHIBITS.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1886.

No. 277.

MAURICE GANDY, APPELLANT,

vs

E. M. MARBLE, AS COMMISSIONER OF PATENTS, AND HIS SUCCESSOR IN OFFICE AS SUCH COMMISSIONER OF PATENTS FOR THE TIME BEING.

APPEAL FROM THE SUPREME COURT OF THE DISTRICT OF COLUMBIA.

FILED APRIL 20, 1887.

Clerk's Certificate to Justice's Official Character.

I, R. J. Meigs, clerk of said court, hereby certify that David K. Cartter, whose genuine signature is subscribed to the foregoing certificate, was, at the time of signing and attesting the same, chief justice of said court, duly commissioned and qualified.

Witness my hand and the seal of said court this 25th day of July, 1884.

[Seal Supreme Court of the District of Columbia.]

R. J. MEIGS, *Clerk*,
By R. J. MEIGS, JR.,
Assistant Clerk.

Endorsed on cover: District of Columbia supreme court. No. 277. Maurice Gandy, appellant, *vs.* E. M. Marble, as Commissioner of Patents, and his successor in office as such Commissioner of Patents for the time being. Filed 12th August, 1884.

122-432

ADDITIONAL EXHIBITS.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1886.

No. 277.

MAURICE GANDY, APPELLANT,

vs

E. M. MARBLE, AS COMMISSIONER OF PATENTS, AND HIS SUCCESSOR IN OFFICE AS SUCH COMMISSIONER OF PATENTS FOR THE TIME BEING.

APPEAL FROM THE SUPREME COURT OF THE DISTRICT OF COLUMBIA.

FILED APRIL 20, 1887.

1 (2–175.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the bound volumes of the library of this office of the specification (no plate) in the matter of the English letters patent granted William Edward Newton January 26th, 1858, number 140, for "a new or improved fabric, intended principally as a substitute for leather."

In testimony whereof I, M. V. Montgomery, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 30th day of March, in the year of our Lord one thousand eight hundred and eighty-seven, and of the Independence of the United States the one hundred and eleventh.

[Seal Patent Office, United States of America.]

M. V. MONTGOMERY,
Commissioner.

2 A. D. 1858, 26th January. No. 140.

Substitute for Leather.

Letters patent to William Edward Newton, of the office for patents, 66 Chancery Lane, in the county of Middlesex, civil engineer, for the invention of "a new or improved fabric, intended principally as a substitute for leather." A communication.

Sealed the 2nd July, 1858, and dated the 26th January, 1858.

Specification in pursuance of the conditions of the letters patent filed by the said William Edward Newton in the Great Seal Patent Office on the 24th July, 1858.

To all to whom these presents shall come, I, William Edward Newton, of the office for patents, 66 Chancery Lane, in the county of Middlesex, civil engineer, send greeting:

Whereas Her Most Excellent Majesty Queen Victoria, by her letters patent bearing date the twenty-sixth day of January, in the year of our Lord one thousand eight hundred and fifty-eight, in the twenty-first year of her reign, did, for herself, her heirs, and successors, give and grant unto me, the said William Edward
3 Newton, her special license, that I, the said William Edward Newton, my executors, administrators, and assigns, or such others as I, the said William Edward Newton, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend within the United Kingdom of Great Britain and Ireland, the Channel Islands, and the Isle of Man an invention for "a new or im-

proved fabric, intended principally as a substitute for leather," being a communication from abroad, upon the condition (amongst others) that I, the said William Edward Newton, by an instrument in writing, under my hand and seal, should particularly describe and ascertain the nature of the said invention and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of said letters patent:

Now, know ye that I, the said William Edward Newton, do hereby declare the nature of the said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement (that is to say):

The fabric which forms the subject of the invention that has been communicated to me by my foreign correspondent is composed of cotton or other fibrous substance, either woven into cloth or in an unwoven state, saturated and coated with a compound of linseed oil and burnt umber. This compound is prepared by boiling in every gallon of oil about three pounds of umber in a powdered
4 state for such a length of time that the composition, when cool, will roll in the hands without sticking. This fabric may be made in forms suitable to the various purposes for which it is intended to be employed, as, for instance, for the soles of boots and shoes, covering for trunks, travelling bags, caps, cap fronts, or as a substitute for carriage and harness leather, or for hose-pipe or machine belting. The mode of producing the fabric differs to some extent, according to the form in which it is to be produced or the purpose for which it is intended to be used, but the elements thereof are in all cases the same.

To prepare the compound for saturating and coating the fibrous substances the oil is put into a suitable vessel having a fire under it or heated by other suitable means, and as it boils the burnt umber is added, stirring it while the latter is introduced and also stirring it constantly or frequently during the subsequent boiling, so as to cause a perfect mixture of the umber and oil and prevent the burning of the oil. The boiling of the mixture should be continued as gently as possible for from twelve to twenty-four hours, the time varying according to the state of the weather or quality of the oil. The boiling will have been sufficient when a few drops taken out and cooled will roll between the hands or the finger and thumb without feeling in the least degree sticky. When it has arrived at this state it may be applied at once to the fibrous substances, but it may be allowed to cool and be remelted by heat as required for use.

To make the fabric in a suitable form for coverings of trunks, travelling bags, caps, cap fronts, or as a substitute for carriage or harness leather a single sheet or piece of cotton or other cloth
5 must be spread upon a hollow iron table or slab heated by steam and having the compound of oil and umber prepared, as before described, at hand; then with a trowel or other suitable implement the compound is to be spread all over the sheet or piece, first on one side and then the other, and by the heat of the table or slab the cloth will be caused to absorb a great portion of the com-

pound. Enough of the compound may be left on the two surfaces of the cloth to cover it well and fill up as much as possible all the small cavities between the threads, and afterwards, while it is still on the table, a heavy metal roller should be passed over it, or else it should be removed from the table and passed between a pair of metal pressure-rollers so as to press it as smooth as possible. The fabric thus produced only requires to be exposed in a drying-room to a heat of from 100° to 130° Fahrenheit for about twenty-four hours for the purpose of curing it and to render it fit for use. It may then be enamelled in the same way as leather, if desired.

Instead of using woven cloth, as before described, the fabric may be made for some of the above purposes (where great tenacity is not so much an object as a close texture and smooth surface, as, for instance, for covering trunks or other articles) by saturating a sheet of cotton batting with the compound of oil and umber. To apply the compound to a sheet of cotton batting a sufficient quantity of it should be spread on one side of a piece of cotton or other cloth; the batting should then be laid on the steam table or slab before mentioned, and the piece of cloth placed on the top of it with the compound next the batting and a heavy metal roller passed over
6 it, the pressure of which, together with the heat of the table or slab, will cause the batting to absorb the compound, after which the cloth may be easily stripped off. The same operation may be, and sometimes will require to be, repeated on the opposite side of the sheet of batttig. The saturated sheet is then passed between a pair of metal pressure-rollers to compress it and give it a close texture. The fabric thus produced requires to be dried or cured in the same way as that made in the manner first described, and it may be afterwards enamelled.

To make a substitute for sole leather or other stout leather, two or more sheets of batting may be laid together and treated as above described, or may have the compound applied to them separately, in the manner above described, and be afterwards combined by pressing them together by the roller on the steam-table or between pressure-rollers.

To make hose-pipe, a woven tube—or a pipe made by folding a piece of cotton or other cloth and sewing the edges together—is filled with the melted or still fluid compound, and while one end of the tube or pipe is closed pressure is applied to the compound within by means of a force-pump or other apparatus, so as to force the compound into and among the threads and fibres to saturate the same as far as possible. The outside of the tube may be afterwards coated with the melted compound, either by passing it through the compound in a suitable vessel or by applying the compound with a brush or other suitable implement to the exterior. The pipe must be afterwards laid upon the steam-table and the roller passed over it to cause the superfluous compound to be expressed from the
7 interior, and, after opening the pipe by forcing water through it, as soon as the outside is dry enough to handle, viz., about two days, it must be hung up to cure in a dry apartment for about three or four days, after which it is fit for use.

To make machine belting, several thicknesses or plies of strong cotton cloth or canvas are employed. These are saturated, coated, and cemented together with the compound. Sometimes the required number of plies are formed by taking a woven tube or a tube formed by folding a piece of canvas or cloth and sewing the edges together. It is then to be flattened out, and within it is laid a piece of cloth folded so that with the tube itself the required number of plies will be produced. Sometimes a piece of cloth of the required width is folded the required number of times to make the number of plies and a seam run along the outer edge of the piece through the whole of the plies by means of a sewing-machine. Every one of the spaces between the several plies is then filled with the melted or still fluid compound of umber and oil in the same manner as above directed for preparing the hose-pipe, and then the belt is laid upon the steam-table, and after coating the exterior with the compound the pressure-roller is passed over it to force out all the superfluous compound and cause the cementing together of the several plies, after which it is to be cured by being hung for a few days in a dry apartment. When the exterior coating of the belt is hard it is sufficiently cured. The compound in the interior, being unexposed to the atmosphere, will remain soft, and thus cause the belt to have the requisite flexibility, while the exterior surface is very hard and tough and capable of wearing for a very long time.

8 The fabric prepared in any of the ways hereinbefore described may be used for steam or other packing.

Having now described the invention of a new or improved fabric, intended principally as a substitute for leather, and having explained the manner of carrying the same into effect, as communicated to me by my foreign correspondent, what I claim as the invention which I desire to secure by letters patent is the fabric above described, composed of cotton or other fibrous substance, in a woven or unwoven condition, saturated or coated with a compound of linseed oil and burnt umber, as herein described.

In witness whereof I, the said William Edward Newton, have hereunto set my hand and seal the nineteenth day of July, in the year of our Lord one thousand eight hundred and fifty-eight.

W. E. NEWTON. [L. S.]

Witness:

J. W. MOFFATT,
66 *Chancery Lane.*

M. B. H.
L. B. R.

9 (2–175.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the bound volumes of the library of this office of the specification (no plate) in the matter of the English letters patent granted Charles Stevens

April 18th, 1861, number 949, for "improved bands for transmitting motion to machinery."

In testimony whereof I, M. V. Montgomery, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 30th day of March, in the year of our Lord one thousand eight hundred and eighty-seven, and of the Independence of the United States the one hundred and eleventh.

[Seal Patent Office, United States of America.]

M. V. MONTGOMERY,
Commissioner.

10 A. D. 1861, 18th April. No. 949.

Machine Bands.

Letters patent to Charles Stevens, of 31 Charing Cross, in the county of Middlesex, patent agent, for the invention of "improved bands for transmitting motion to machinery." A communication from abroad by Jean Joseph Thiberge, of 42 Rue Laffitte, Paris, in the Empire of France.

Sealed the 26th September, 1861, and dated the 18th April, 1861.

Specification in pursuance of the conditions of the letters patent filed by the said Charles Stevens in the Great Seal Patent Office on the 17th October, 1861.

To all to whom these presents shall come, I, Charles Stevens, of 31 Charing Cross, in the county of Middlesex, patent agent, send greeting:

Whereas Her Most Excellent Majesty Queen Victoria, by her letters patent, bearing date the eighteenth day of April, in the year of our Lord one thousand eight hundred and sixty-one, in the twenty-fourth year of her reign, did, for herself, her heirs and successors, give and grant unto me, the said Charles Stevens, her special license that I, the said Charles Stevens, my executors, administrators, and assigns, or such other as I, the said Charles Stevens, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an invention for "improved bands for transmitting motion to machinery," a communica-
11 tion to me from abroad by Jean Joseph Thiberge, of 42 Rue Laffitte, Paris, in the Empire of France, upon the condition (amongst others) that I, the said Charles Stevens, my executors or administrators, by an instrument in writing, under my or their or one of their hands and seals, should particularly describe and ascertain the nature of the said invention and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said letters patent:

Now know ye that I, the said Charles Stevens, do hereby declare the nature of my said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement—that is to say:

My invention relates to improved bands for transmitting motion to machinery, my mode of manufacture enabling me to obtain bands equal in strength and durability to leather at a much lower price and of any required length, so necessitating but one join. The bands are woven of cotton and thread or entirely of cotton. The strength is obtained by the mode in which the warp is prepared, the slay arranged, and the shuttle worked. The warp is prepared as follows: The cotton best suited is that known as No. 10 or No. 12, well twisted in 16 or 20, and stretched. It must also be drawn in the warping, so that all the threads of the warp are perfectly stretched. In placing the warp on the beam the threads must pass round several bars or rests, so as to be stretched as much as possible. Twenty-four threads go to the centimetre (about $\frac{4}{10}$ of an inch) of the width of the piece to be woven. The slay must be close and strong, so that eight or nine threads of the warp can pass in each chamber, and the slay must be of exactly the same width as is to be given to the piece. The four blades or lames work two-and-two on two cylinders, on which they roll by means of straps. The first and second blades are on the first cylinder, the side where the workman is placed. The third and fourth blades are on the second cylinder, which follows the first. The blades are worked by treadles by means of cords, each blade corresponding to its treadle; thus the first blade is attached to the first treadle, the second to the second, and so on.

12

The following is the way in which the threads of the warp are arranged so as to produce the crossing: Taking the first eight threads on the left of the warp, it is the fourth and eighth threads which depend on the fourth blade, the first and fifth on the third blade, the third and seventh on the second blade, and the second and sixth on the first blade; thus the order of the blades must always be followed—three, one, two, four—so that all the threads of the warp pass.

The following is the mode of manufacture, the shuttle being on the right of the driver:

1stly. Press with the feet on the third and first treadles, drive the shuttle to the left, give a blow with the driver so that the slay strikes the thread of the weft, pass the shuttle in the middle of the opening of the warp, striking with the driver, so that the front of the shuttle strikes the thread of the weft one or more blows, according to the size of the tissue.

2ndly. Press on the fourth and first treadles, pass the shuttle to the right, strike the thread of the weft with the slay and give one or more blows on the thread of the weft with the front of the shuttle.

3rdly. Press on the fourth and second treadles, pass the shuttle to the left, strike the thread of the weft with the slay, then with the shuttle.

4thly. Press on the third and second treadles, pass the shuttle to the right, strike with the slay, then with the shuttle.

13 It will be seen from the above that the treadles to be lowered for effecting the crossing are in the following order:

1stly. The third and first treadle.
2ndly. The fourth and first do.
3rdly. The fourth and second do.
4thly. The third and second do.

The same order is always to be continued. At each opening the shuttle is passed and the thread of the weft is drawn; the thread of the weft is driven with the slay, and then again struck one or more blows with the sharp part of the shuttle to give greater consistency to the piece. The shuttle is of wood, but furnished in front with a piece of iron, so as to resemble the blade of a knife. It is with the sharp part that the thread of the weft is struck each time of passing. The weft consists of five threads of warp twisted together and well stretched; twenty-five threads of this weft must enter in about 4 inches (10 centimetres) of the length of the piece. At each retaking of the weft care must be taken to make the join of the two ends come in the middle of the piece, so as to preserve its good appearance. The thickness of the piece woven must be from 0.16685 of an inch (five millimetres) to 0.18653 of an inch (five and a half millimetres). The beam near the knees of the workman rolls up the stuff made at each throw of the shuttle by means of weights which draw on the pulleys at the ends. The weights must increase by degrees as the length of the stuff increases. The beam of the warp resists the unrolling by means of two, four, or six cotton cords, according to the width of the piece, each passing two or three times round the ends of the beam, and stretched by weights. The two beams, turning and pulling in contrary directions, again stretch the threads, and it is only by the blow of the shuttle that the piece is formed and the strength given to it. Should there be a

14 default of force the jacks or catches are let go which hold the beam, the work is drawn back, and the weights are slightly increased, which hold back the warp, and then the former degree of tension is given to the work by means of the shuttle.

Having thus described my invention, what I claim and desire to secure by letters patent is the mode of weaving hereinbefore described, by which means I obtain my improved bands or straps for communicating motion to machinery, and other purposes.

In witness whereof I, the said Charles Stevens, have hereunto set my hand and seal this seventeenth day of October, in the year of our Lord one thousand eight hundred and sixty-one.

CHARLES STEVENS. [L. S.]

J. F. F.
E. A. C.

15 (2–175.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Edwin A. Street April 14th, 1874, number 149,805, for improvement in machine beltings.

In testimony whereof I, M. V. Montgomery, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 30th day of March, in the year of our Lord one thousand eight hundred and eighty-seven, and of the Independence of the United States the one hundred and eleventh.

[Seal Patent Office, United States of America.]

M. V. MONTGOMERY,
Commissioner.

16 (2–155.)

No. 149,805.

The United States of America to all to whom these presents shall come:

Whereas Edwin A. Street, of Lynn, Massachusetts, has presented to the Commissioner of Patents a petition praying for the grant of letters patent for an alleged new and useful improvement in machine beltings, a description of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided; and

Whereas, upon due examination made, the said claimant is adjudged to be justly entitled to a patent under the law:

Now, therefore, these letters patent are to grant unto the said Edwin A. Street, his heirs or assigns, for the term of seventeen years from the fourteenth day of April, one thousand eight hundred and seventy-four, the exclusive right to make, use, and vend the said invention throughout the United States and the Territories thereof.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this fourteenth day of April, in the year of our Lord one thousand eight hundred and seventy-four, and of the Independence of the United States of America the one hundred and ninety-eighth.

[Seal Patent Office, United States of America.]

B. R. COWEN,
Acting Secretary of the Interior.

Countersigned:
M. D. LEGGETT,
Commissioner of Patents.

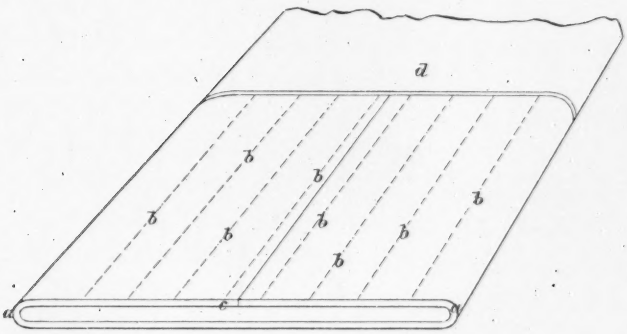
(Here follows diagram marked p. 17.)

17 E. A. STREET.

Machine Beltings.

No. 149,805. Patented April 14, 1874.

GANDY
v.
MARBLE. } No. 277, p 17.



Inventor:

EDWIN A. STREET,
Per CROSBY & GOULD, *Att'ys.*

Witnesses:
M. W. FROTHINGHAM.
L. H. LATIMER.

18 UNITED STATES PATENT OFFICE.

EDWIN A. STREET, of Lynn, Massachusetts.

Improvement in Machine Beltings.

Specification forming part of Letters Patent No. 149,805, dated April 14, 1874; application filed March 18, 1874.

To all whom it may concern:

Be it known that I, Edwin A. Street, of Lynn, in the county of Essex and State of Massachusetts, have invented an improvement in machine belting, and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention has particular reference to the manufacture of belting from woven material, folded or arranged in layers and united by parallel rows of continuous stitches.

In my invention I coat the outer surface of the structure thus made with india-rubber solution and sometimes the inner or contiguous surfaces, and after thus coating or applying rubber or rubber

compound or solution I vulcanize the belt, the vulcanization effecting a perfect union of the folds or layers and a smooth, elastic, and enduring coating for the outer surface of the belt. The invention consists of a belt thus formed of folds or layers of woven material united by parallel rows of continuous stitches; the strips or layers being coated with rubber and the layered, stitch-united, and rubber-coated structure being vulcanized to finish the belt.

The drawing represents a piece of belt formed of a strip of woven material folded at *a* and having the folds united by the rows of stitches *b*, the drawing showing an interior strip, *c*, inclosed within the main strip. The strips are covered or coated with rubber solution or rubber compound; and, being thus covered and folded or assembled in layers so as to form a structure of uniform width having its parts united by stitches, the belt is vulcanized by the common methods of vulcanization, the vulcanized rubber between the layers forming a homogeneous connection of the respective parts and the outer coating forming a smooth covering to the belt.

The structure thus made may be covered by a coating of rubber vulcanized over and with the rest of the structure.

I claim—

A machine belt made of woven material formed or made in folds or layers, surfaced, united, and vulcanized substantially as described.

EDWIN A. STREET.

Witnesses:
FRANCIS GOULD.
M. W. FROTHINGHAM.

19 Supreme Court of the United States.

MAURICE GANDY, Appellant,
vs.
E. M. MARBLE, as Commissioner of Patents, Appellee.

In the above-entitled cause it is consented that new certified copies of the specifications of British patents No. 140, dated January 26th, 1858, & No. 949, dated April 18th, 1861, and also certified copy of United States patent No. 149,805, be substituted for similar copies duly put in evidence as exhibits in said cause, as appears by the record herein (pages 26 & 27), said original copies having been lost.

AMOS BROADNAX,
For Complainant.
G. A. JENKS,
Solicitor General.

20 [Endorsed:] Supreme Court U. S. October term, 1886. No. 277. Maurice Gandy, app't, *vs.* E. M. Marble, as Com'r of Patents, &c. Stipulation and addition to record.

[Stamped:] Office Supreme Court U. S. Filed Apr. 20, 1887. James H. McKenney, clerk.

122-402

U. S. Supreme Court,

IN EQUITY—CASE NO. 277.

MAURICE GANDY,

Complainant.

vs.

E. M. MARBLE, as Commissioner of Patents, etc.,

Defendant.

BRIEF OF COMPLAINANT'S COUNSEL.

AMOS BROADNAX,

Of Counsel for Complainant.

compound or solution I vulcanize the belt, the vulcanization effecting a perfect union of the folds or layers and a smooth, elastic, and enduring coating for the outer surface of the belt. The invention consists of a belt thus formed of folds or layers of woven material united by parallel rows of continuous stitches, the strips or layers being coated with rubber and the layered, stitch-united, and rubber-coated structure being vulcanized to finish the belt.

The drawing represents a piece of belt formed of a strip of woven material folded at *a* and having the folds united by the rows of stitches *b*, the drawing showing an interior strip, *c*, inclosed within the main strip. The strips are covered or coated with rubber solution or rubber compound; and, being thus covered and folded or assembled in layers so as to form a structure of uniform width having its parts united by stitches, the belt is vulcanized by the common methods of vulcanization, the vulcanized rubber between the layers forming a homogeneous connection of the respective parts and the outer coating forming a smooth covering to the belt.

The structure thus made may be covered by a coating of rubber vulcanized over and with the rest of the structure.

I claim—

A machine belt made of woven material formed or made in folds or layers, surfaced, united, and vulcanized substantially as described.

EDWIN A. STREET.

Witnesses:

FRANCIS GOULD.

M. W. FROTHINGHAM.

19 Supreme Court of the United States.

MAURICE GANDY, Appellant,

vs.

E. M. MARBLE, as Commissioner of Patents, Appellee.

In the above-entitled cause it is consented that new certified copies of the specifications of British patents No. 140, dated January 26th, 1858, & No. 949, dated April 18th, 1861, and also certified copy of United States patent No. 149,805, be substituted for similar copies duly put in evidence as exhibits in said cause, as appears by the record herein (pages 26 & 27), said original copies having been lost.

AMOS BROADNAX,
For Complainant.

G. A. JENKS,
Solicitor General.

20 [Endorsed:] Supreme Court U. S. October term, 1886. No. 277. Maurice Gandy, app't, *vs.* E. M. Marble, as Com'r of Patents, &c. Stipulation and addition to record.

[Stamped:] Office Supreme Court U. S. Filed Apr. 20, 1887. James H. McKenney, clerk.

122-402

U. S. Supreme Court,

IN EQUITY—CASE NO. 277.

MAURICE GANDY,

Complainant.

vs.

E. M. MARBLE, as Commissioner of Patents, etc.,

Defendant.

BRIEF OF COMPLAINANT'S COUNSEL.

AMOS BROADNAX,

Of Counsel for Complainant.

SUPREME COURT

OF THE UNITED STATES.

October Term, 1886.

MAURICE GANDY, Complainant, vs. E. M. MARBLE, as Commissioner of Patents, and his successors in office, as such Commissioner of Patents for the time being.	In Equity; on Bill. Case 277.

APPEAL FROM THE SUPREME COURT OF THE DISTRICT OF COLUMBIA.

This, may it please the Court, is a Bill filed in the court below to obtain a patent.

The bill is authorized by section 4915 of the Revised Statutes, as follows:

SEC. 4915. Whenever a patent on application is refused, either by the Commissioner of Patents or by the Supreme Court of the District of Columbia, upon appeal from the Commissioner, the applicant may have remedy by bill in equity; and the Court have cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention, as specified in his claim, or for any part thereof, as the facts in the case may appear. And such adjudication, if it be in favor of the right of the applicant, shall authorize the Commissioner to issue such patent on the applicant filing in the Patent Office a copy of the adjudication, and otherwise complying

with the requirements of law. In all cases, where there is no opposing party, a copy of the bill shall be served on the Commissioner; and all the expenses of the proceeding shall be paid by the applicant, whether the final decision is in his favor or not.

The following is an abstract of the Bill as originally filed:

ABSTRACT OF BILL.

1st. Complainant is a citizen of Liverpool, England, and brings this suit in his own right.

2d. Both defendants are citizens of the District of Columbia; the one being Secretary of the Interior, and the other Commissioner of Patents; and the action is against them as Secretary of the Interior and as Commissioner of Patents, respectively.

3d. Complainant, before December 1st, 1877, was the first and original inventor of certain improvements in belts or bands for driving machinery.

4th. On December 1st, 1877, complainant filed an application for a patent for said invention in the Patent Office.

5th. Said application contained a description of said invention, and was accompanied by the fees required by law in such cases.

6th. Said application, having been considered by the examiner in charge of the same, was rejected.

7th. An appeal was thereupon taken to the Commissioner of Patents, in person, and being duly heard by him, the decision of the examiner was affirmed, and a patent refused.

8th. An appeal was thereupon taken to the Supreme Court of the District of Columbia, sitting in banc, as provided by law.

9th. Said Court, upon consideration of said appeal, dismissed the same, refusing complainant a patent.

10th. Said application was rejected, for the alleged reason that said invention was not new, and therefore not patentable. But complainant submits and insists, nevertheless, that his said invention was new at the time of the filing of his said application, and that he was and is justly entitled to a patent for it.

The inventions and patents referred to, upon which his said application was rejected, viz: Newton's English Patent, dated Jan'y 26th, 1858, Steven's English Patent, dated April 18th, 1861, and Street's American Patent, dated April 14th, 1874, do not, in any just or fair sense, anticipate his invention.

11th. Said application was, in fact, unjustly rejected, and complainant was and is erroneously denied a patent for his said invention.

12th. Said invention is of great public utility and complainant has established the manufacture of said belts in this country upon a large scale, and has introduced the same in public use.

13th. In establishing the manufacture of said belt in this country, and in introducing the same in public use, complainant has expended not less than fifty thousand dollars.

14th. He has obtained patents for said invention in England, Germany, Austria, Italy, Australia and other countries, and his rights under said patents have been upheld and respected.

15th. Others seeing the great utility of complainant's invention, and knowing him to be unprotected by letters patent, are beginning to make and use his invention to his great damage.

16th. The Bill prays that the Court will take cognizance of, and consider complainant's petition and grant him a patent for his said invention, or so much thereof as he may be justly entitled to.

17th. The Bill concludes with a prayer for process.

This Bill having been duly filed, and process issued and served, and no one appearing for defendants, the following notice was served upon them:

To the defendants herein:

Please take notice, that on Saturday, the 20th day of October, 1883, at ten o'clock in the forenoon of that day, or as soon thereafter as counsel can be heard, I will move the Court for leave to enter your default herein, and thereupon to proceed with the cause *ex parte* to final hearing.

Dated, October 19th, 1883.

Upon this notice is endorsed the following admissions of service:

Due and timely service of the foregoing notice is hereby admitted.

H. M. TELLER,
Secretary of the Interior.

E. M. MARBLE,
Commissioner of Patents.

Dated, October 19th, 1883.

No one appearing in response to this notice, upon motion of complainant's solicitor, the Court entered the following order:

"And now, October 20th, 1883, it appearing by the record herein, "that the process of the Court and a copy of the Bill of Complaint "was duly served upon defendants, and it not appearing that de- "fendants have appeared or made answer to said Bill of Complaint, "it is ordered, upon reading and filing the foregoing notice of motion "and admission of service, and upon motion of complainant's solici- "tor, no one appearing for defendants, that complainant have leave "to enter defendant's default and proceed with his cause *ex parte*, "and that he have sixty days from the date hereof to take and put "in his proofs, and that he may take and put in such proofs before "the Clerk of the United States Circuit Court for the Southern Dis- "trict of New York, and also before the United States Consul, re- "siding at Liverpool, England.

"COX, Judge.

"Dated, October 20th, 1883."

Under this order all the proofs of complainant were put in *ex parte*, without objection from any source.

The proofs having been duly put in the following order was made in Special Term of the Court for the hearing of the cause by the General Term in the first instance:

SUPREME COURT,

OF THE DISTRICT OF COLUMBIA,

In Equity.

Between MAURICE GANDY, Complainant, and HENRY M. TELLER, as Secretary of the Interior, and E. M. MARBLE, as Commissioner of Patents, Defendants.	No. 8,545. Bill filed May 3d, 1883.

And now, to wit, on the 14th day of April, 1884, the above-entitled cause being brought on for hearing, upon motion of Amos Broadnax, counsel for complainant, no one appearing for defendants,

It is ordered that said cause be heard by the General Term of this Court in the first instance.

CHARLES P. JAMES.
Justice Sitting in Special Term.

This order being duly entered and the cause set for hearing by the General Term of the Court, the following notice was served, and motion made on behalf of defendants.

Notice of motion to dismiss bill, filed April 26th, 1884. R. J. Meigs, Clerk.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, April 24th, 1884.

MR. AMOS BROADNAX, New York City,

SIR.—Please take notice that on Monday, the 28th inst., at 10 A. M., or as soon thereafer as counsel can be heard, I shall move to dismiss the bill in the cause, entitled Maurice Gandy v. Henry M. Teller, Secretary of the Interior, and E. M. Marble, Commissioner of Patents, and shall also move to set aside the order entering the default of the defendants, and for leave to make defense in said cause.

FRANK T. BROWN,
Att'y for Commissioner.

Filed April 26, 1884. R. J. MEIGS, Clerk.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, April 28, 1884.

Supreme Court of the District of Columbia. General Term.

MAURICE GANDY
v.
HENRY M. TELLER, Secretary of the Interior, and
E. M. MARBLE, Commissioner of Patents.

No. 8,545. Equity Docket 23.

And now comes Benjamin Butterworth, Commissioner of Patents, by his attorney, Frank T. Brown, for the purposes of this motion only, and moves the Court to set aside the order entering default on defendants, and grant him leave to plead, demur, or answer, as may seem most advisable in the premises.

And for cause for the granting of this motion the mover respectfully shows to your Honor that Henry M. Teller, as Secretary of the Interior, is not a proper party to this suit, and that E. M. Marble, Commissioner of Patents, has resigned his position, and Benjamin Butterworth, before mentioned, has succeeded him.

And for further cause shows that the application for a patent upon which this suit is based has no legal existence, having become abandoned by reason of a failure to prosecute the same within two years after the last action thereon, of which due notice was given the complainant.

The mover herein will undertake to file his proper defense within such time as the Court shall direct.

These matters are within the knowledge of the Court, and disclosed by the record.

This motion is not made for the purpose of delay, but that justice shall be done in the cause.

FRANK T. BROWN,
Att'y for Commissioner.

Upon the hearing of this motion, the Court intimated that the Secretary of the Interior was an unnecessary party to the Bill, and granted complainant leave, in open Court, to amend the Bill as follows:

Amendment of Bill. Filed April 29, 1884. R. J. Meigs, Clerk.

In the Supreme Court of the District of Columbia. In Equity.

MAURICE GANDY, Complainant,
vs.
H. M. TELLER, as Secretary of the Interior, and
E. M. MARBLE, as Commissioner of Patents.

On Bill under Section 4915, R. S., to obtain a Patent.

And now, to wit, April 29th, 1884, upon motion of complainant's counsel, Frank T. Brown appearing for the Commissioner of Pat-

ents, it is ordered that complainant have leave to amend his bill nunc pro tunc as follows :

Strike out of the title of the cause the words " H. M. Teller, as Secretary of the Interior, and," and after the word " patents " add the words, " and his successor in office as such Commissioner of Patents for the time being," making the title of the bill as amended read as follows :

Between Maurice Gandy, complainant, and E. M. Marble, as Commissioner of Patents, and his successor in office as such Commissioner of Patents for the time being.

Amend also by striking out the second paragraph of the bill and by substituting the following :

That the defendant is a resident of the District of Columbia, and is sued in this action as Commissioner of Patents.

Amend also by striking out of the 17th Section of the Bill, being the prayer for process, the words " said H. M. Teller, as Secretary of the Interior, and to the," and also the word " them," substituting therefor the word " him," making the prayer for process, as amended, read as follows :

And may it please your honors to grant unto your orator also a writ of subpœna issuing out of and under the seal of this Honorable Court, directed to the said E. M. Marble, as Commissioner of Patents, and his successor in office as such Commissioner of Patents for the time being, commanding him to appear at a certain time and place in this Court to answer the premises, and to stand to and abide such orders and decrees herein as may be consistent with equity and justice, and as may be required of him as such Commissioner of Patents, according to the statutes in such cases made and provided.

And it is further ordered that the process of the Court heretofore issued in this case be, and the same is hereby, amended to conform to the Bill as now amended.

Dated April 28th, 1884.

AMOS BROADNAX,
Complainant's Solicitor.

In all other respects, the foregoing motion was denied, and the cause thereupon went to argument upon the merits, leave having been granted defendant, nevertheless, to be heard orally upon any proper issue, in response to the Bill.

Upon the argument, it was contended on behalf of complainant, that upon the case made he was justly entitled to a patent under the law, as against the state of the art as disclosed by the proceedings in the Patent Office and that the case was an appeal by original Bill to the equitable power of the Court,

under the statute, to hear the application *de novo* upon the evidence, and to grant complainant a patent for the invention as claimed, or for any part thereof, according as the facts might warrant.

On behalf of defendant, it was contended: *First*, that in view of the state of the art, as disclosed by the the Patent Office record, the application did not describe or claim a patentable inventien; *second*, that the application for the patent upon which the suit was based had no legal existence, the same having been abandoned by reason of failure to prosecute it within two years after the last action therein, of which notice was duly communicated to the applicant.

This last issue was really the ground upon which defendant moved, before argument upon the merits, to dismiss the Bill; but the Court, refusing to grant the *motion* to dismiss, refused also to dismiss the Bill upon the same ground, when the cause came to be argued upon the merits, although the same objection was again urged.

The Court below, as we understood it, dismissed the Bill upon the ground, that the application was properly rejected when it was before it upon appeal from the Commissioner of Patents; the Court thinking that its judgment upon the application as it was then before it was correct, and declined to hear the application *de novo* upon the evidence taken in support of the Bill, treating the case as in the nature of an appeal from the Commissioner of Patents; which it clearly is not. But the Court wrote no opinion. It gave no reason in writing for dismissing the Bill; nor did it give any reason in writing for dismissing the appeal, when the application was before it on appeal from the Commissioner of Patents.

The record in the Court below throws no light on the opinion of that Court. All that appears by the record is the fact that the case was brought in that Court; that process was duly issued and served; that certain motions and orders were made; that the case

was finally heard up on its merits; that the Bill was dismissed, and an appeal allowed to this Court.

That the Bill is duly authorized by statute, we think there can be no doubt; and being an original Bill in Equity, duly authorized, and regularly brought in a duly constituted Court of competent jurisdiction, from whence an appeal is duly authorized by statute to this Court in patent cases, we think, upon the authority of the Statutes (Sections 699 and 711) and the case of *Butterworth vs. Hill*, 114 *U. S.*, 133, that we are authorized to bring this case here upon appeal, and that this Court has jurisdiction of the matter of the Bill.

COMPLAINANT'S CASE:

The complainant by his Bill insists, that notwithstanding the rejection of his application by the Patent Office, and by the District Supreme Court upon appeal, he is, nevertheless, entitled to a patent for his invention, and prays the Court to take cognizance of his application and award him a patent for his invention as claimed, or for such part thereof as he may be justly entitled to, and to grant him such other and further relief as may be warranted by the premises.

The questions before the Court are

First, What is the invention?

Second, Is the whole or any part of it patentable?

Third, Has the inventor, by any act of omission, forfeited his right to a patent?

We beg leave to present these questions to the Court in the order we have propounded them.

First.—WHAT IS THE INVENTION?

The specification as originally filed on December 1st, 1877, is as follows:

To all whom it may concern:

BE IT KNOWN, that I, Maurice Gandy, of Liverpool, in the County of Lancaster, in that part of the United Kingdom of Great Britain and Ireland called England, have invented certain improvements in belts or bands for driving machinery, of which the following is a full and exact description:

My invention relates to manufacturing belts or bands for driving machinery, of cotton canvas or duck, "*hard woven*," either in *widths to suit the size of such belt or band, without folding*, or in *wider widths, folded up*, so as to form the necessary thickness or plies. The belt or band can also be made in part folded up and part of separate thicknesses of such "hard woven" cotton canvas or duck. The cotton canvas or duck is put together either by hand or by folders or guiders, and formed into a belt of the desired width and thickness, and then *stitched with rows of stitching, such rows of stitching being spaced about half an inch apart, the whole width of the belt*, the stitching being done by a sewing machine, or otherwise. The belt or band, so constructed, is then *soaked or saturated in oil*, such as linseed oil, either boiled or raw, or a mixture of linseed oil with other oils or spirits, such oil or mixture being thinned, if necessary, by heat or spirits, to facilitate saturation.

A modification of my invention consists in soaking or saturating with oil, such as boiled linseed oil, the hard woven canvas or duck before it is made up into the belt. The canvas is then made into the belt, the oil squeezed out, by passing through rolls or other pressure, and stitched as before described.

After soaking or saturating the belt or band, or the canvas or duck, before forming into the belt or band, I pass it through the rolls to squeeze out the superfluous oil.

The belts or bands are then racked to dry, and afterwards painted, or they may be used without being painted, as preferred by the user.

If the oiling is effected on the canvas or duck before forming such canvas or duck into the belt, I, by preference, dry it before stitching, and after drying, it is stitched and painted.

I would remark that I am perfectly aware that belts or bands of cotton canvas or duck are not new, as such have been made previous to my invention, by folding and sewing, the sewing machine being used for such sewing or stitching. I myself have manufactured and sold belts so made for over four years. I am also aware that belts or bands have been made by weaving cotton into the form and thickness of such belt or band, and afterwards saturating such belt or band with oil, such as boiled linseed oil. I myself have manufactured and sold such belts for over three years. The objection to the folded belt is that the same is not durable, having been made of soft woven canvas, or duck, and the oil is not interlarded between the folds of

the belt and is not intermingled with the fibre of the material, and the belt is detrimentally affected by variations in the atmosphere. The objection to the woven and oil saturated cotton belts consists in their excessive elasticity and their being of minimum durability, for when the selvage is cut the whole belt is apt to give out.

Having thus described the nature and construction of my invention, what I desire to secure by Letters Patent is:

As a new article of manufacture, a belt or band for driving machinery constructed of hard woven cotton canvas or duck, stitched and saturated and interlarded with oil, such as linseed oil or any combination thereof, as herein described.

In witness whereof, I, the said Maurice Gandy, have hereunto set my hand and seal, this 8th day of November, in the year of our Lord one thousand eight hundred and seventy-seven.

[L. S.] MAURICE GANDY.

Witnesses:

FREDERICK JOHN CHEESBROUGH,
JOHN HAMILTON REDMOND,
both of 15 Water Street,
Liverpool, England.

Upon this specification a patent was granted to complainant in England May 9th, 1877. Any patent, therefore, granted in his country for this invention will be limited to expire with this English patent.

Upon the face of this specification it is apparent that the invention consists of an improved product, or what the statute calls an "improved manufacture," to wit: a *laminated belt composed of several thicknesses of hard woven cotton canvas or duck, saturated with oil, and closely drawn together in absolute contact with each other by parallel rows of stitching over its entire surface.*

Second.—DOES THIS "IMPROVED MANUFACTURE" POSSESS THE NECESSARY NOVELTY AND UTILITY TO SUPPORT A PATENT?

This question must be answered in the affirm-

ative unless there is sufficient facts in the record to prove the invention to be old.

In determining the question of novelty, the following sub-questions will necessarily arise, viz: *First*, what combination of ingredients enter into the construction of the belts; and, *second*, what *properties* does the belt possess as a product. Having ascertained these facts, the question of novelty and utility is quickly disposed of upon the evidence and upon comparison of this belt with those that have gone before.

As we have seen by the specification, and as appears by the specimens of belting here in evidence, the combination of elements are: 1st. A *hard* woven canvas. 2d. The *folding or laminating* of the canvas to the desired width. 3d. *Stitching the several lamina hard upon each other by parallel rows of stitching over its entire surface.* 4th. *Saturating the belt or canvas with suitable oil.*

These are the elements employed. The hard canvas is necessary to keep the belt from stretching. The folding or laminating is necessary to yield the necessary strength. Stitching over the entire surface is necessary to yield the necessary body and firmness. The oiling is necessary to soften the hard canvas and keep the belt from cutting itself upon the pulley, and to protect it against atmospheric and thermal changes.

The inventor himself has stated under oath the difficulties he met with in producing a practical belt of canvas, and why the belt is composed as it is, and his statement will aid us in understanding the novelty and utility of his manufacture.

1 Q. State your name, age, residence and occupation.

A. My name is Maurice Gandy; I am fifty-four years of age; my residence is in New Brighton, County of Chester; my place of business is in Liverpool, County of Lancaster, both in England; and I am engaged in manufacturing cotton belting, known as the Gandy Belt, in England, and also in Baltimore, Maryland, one of the United States of America.

2. Q. State if you please, how long you have been engaged in the manufacture of the belt referred to in your last answer, and please

to state also how the invention of this belt grew to its present state of perfection from the original conception of the idea of manufacturing belts of cotton canvas or duck.

A. In 1872 and 1873 I was engaged in supplying the manufacturers of rubber belt with the canvas used in the manufacture of rubber belting, and in the year 1873 my attention was drawn to the manufacture of drier felts for paper manufacturing, and I attempted to manufacture these drier felts of cotton canvas; the attempt, however, proved a failure. The proprietor of one of the mills in which I attempted to introduce the drier felt called my attention to the deficiencies of leather belting in paper mills, and stated to me that there was no belt that was really well adapted for use in paper mills, and asked me why I did not try to make a belt that was better adapted for use in paper mills and similar places than the belts made of leather or rubber, or wood, that were then giving the paper makers much trouble on account of the dampness in the mills. Upon this hint I conceived the idea of manufacturing belts for driving machinery of cotton canvas, and I produced my first belt somewhere about the middle of the year 1873. That belt was made of ordinary cotton canvas, such as I was supplying to the india-rubber belt makers. It was composed by folding the canvas precisely as I fold it now in manufacturing my belts, and the several folds or plies of canvas were stitched together by longitudinal rows of stitching, precisely as I now stitch my belts: differing however, from my present method in that the rows of stitching were in my first belts about one inch apart, but finding that insufficient I stitched them with rows of stitching half an inch apart, which stitching I subsequently found to be also insufficient. I thereupon adopted my present method of stitching the belt with rows of stitching one quarter of an inch apart, but the belt as I made it in 1873 had the rows of stitching one inch apart. It was not then saturated with oil, but consisted simply of the canvas folded so as to bring the selvage of the canvas inside of the belt, thus forming the edges of the belt of the smooth, even fold of the canvas, the several plies or thicknesses being stitched together, as I have already stated.

This belt I found to be insufficient for the reason that it was very much affected by atmospheric changes, and would stretch and stretch until there seemed to be no end to its stretching; and another difficulty I found was that the belt would not adhere to the pulley, but would slip, so that in practice I considered it a failure. I then commenced a series of experiments with the determination of producing a good practical belt made of cotton canvas, and I persevered in my experiments from the time I commenced in 1873, down to somewhere about the middle of 1877, before I succeeded in producing a satisfactory belt such as I now manufacture, adhering to my original method of folding the canvas so as to bring the salvage in the inside and form the edges of the belt at the folds of the canvas. I commenced my further experiments by having canvas woven of suitable widths to form the belts of the width I wanted them to be when folded.

This canvas I had hard woven and folded and stitched together, as I have already described, the rows of stitching being somewhere about half an inch apart. The hard woven element in the canvas cured that defect in the belt due to the stretching that characterized the belt made of ordinary canvas, but the slip of the belt on the pulley was increased, as the hard woven canvas did not adhere to the pulley as well as did the soft canvas, and the belt was still defective on account of atmospheric changes, and a new difficulty presented itself growing out of the hardness of the canvas; it was this: the face of the belt next the pulley on account of the constant bending and straightening around the pulley, would cut itself off.

This I found a serious difficulty; the canvas had to be made hard enough to avoid the stretching, and when made hard enough to meet this difficulty, then the inside lamina of the belt would bite itself off, and would also destroy the stitching that held the several plies together.

To get over this difficulty I instituted a lot of experiments extending over considerable time. The point was to retain the hard woven quality of the canvas and at the same time to soften it so as to prevent the cutting, as I have already stated. To do this I first treated the canvas with paraffine, which did not succeed; it not only did not sufficiently soften the canvas, but it caused the belt to slip to such a degree as to render it impracticable. I next treated the belt with petroleum oil; this did not succeed, because it quickly evaporated and left the canvas harder than before. I next treated the canvas or belt with a preparation of acetate of lead, the effect of which was to make the canvas harder than before. I then tried a preparation of catechu, similar to that used in the treatment of fishing nets to make them resist the action of the salt water; this, however, useful in the treatment of fishing nets, did not succeed as an element in the manufacture of my belt. I then tried a coating of paint over the surface of the belt, in combination with the solution of catechu, the paint being applied to the surface of the belt while it was still damp with the catechu solution. By this means I succeeded in making the belt grip or draw well on the pulley, but it did not prevent the inside lamina from cutting as before stated, nor did it effectually prevent the shrinking and other defects due to atmospheric changes.

My next experiment was with linseed oil thinned with the spirits of petroleum. Through this mixture I passed the belt, but I did not soak or saturate the belt through and through; the effect of this was that the spirits of petroleum quickly evaporated, leaving a thin deposit of dried oil on the surface. This proving ineffectual, I passed the belt in the same way as before, through hot-boiled linseed oil. The effect of this was to leave a deposit of boiled linseed oil in the outside lamina or ply of the belt. This oil would dry hard, making the surface of the belt hard, causing it to crack, and did not effectually prevent the defects due to atmospheric changes, nor did it effectually soften the hard canvas.

I then hit upon the idea of soaking the belt or canvas in a mixture

of linseed oil, resin oil and petroleum oil, mixing these oils in about the following proportions, viz.: three parts of linseed oil, one part of resin oil and one part of petroleum oil.

The belt being thoroughly saturated with this mixture of oils, I passed it between a pair of rollers by which I squeezed out the superfluous oil, while at the same time I forced it more effectually into the texture of the tight woven canvas, thoroughly incorporating the oil with the fibre of the entire structure. By th se means I succeeded in getting a satisfactory belt. The effect of this oil upon the canvas was to soften it, and at the same time protect it against the defects due to atmospheric changes.

This mixture of oils, when applied to the belt, does not become hard and dry like paint oil, but it assumes the consistency of an elastic gum; it effectually excludes the moisture, while at the same time it softens the hard-woven canvas sufficiently to prevent it from cutting.

This mixture of oils, and this method of saturating the belt therewith, I adopted about May, 1877, and I have adhered to it, substantially, from that time to this, varying it, however, to suit the different climates in which the belt is to be used.

I now considered my belt a practical success, but found, upon a little further experience, that where the belt was subjected to great strain the canvas would cut the stitching and loosen the several pli s of the belt. To overcome this difficulty I doubled the rows of stitching; in other words, I put the rows of stitching only a quarter of an inch apart, instead of half an inch as before, by which means I drew several plies of canvas more absolutely in contact with each other.

Here we have a statement in the inventor's own words, under oath, of what the elements must be, and the reason why they must be combined together to produce the belt. Now, the combination of *properties*, united in the belt, as resulting from this combination of elements, are: Greater tensile strength; greater solidity of body and less tensile elasticity than any other belt made of fibrous or textile material; absolute proof against mildewing, and against injury from atmospheric and thermal changes; proof against injury from working in damp or wet places, where neither leather nor india rubber belting can be used, or in hot, dry places, and in the presence of gases deleterious to leather belting; superior gripping and driving power upon the pulley due to its firmness and body, coupled with the necessary

pliability to keep the belt from cutting itself; freedom from injury when operating as a cross belt, or in running through shifting forks from fast to loose pulleys—a service fatal to india rubber belting; superior uniformity of tensile pull—that is to say, the belt is straighter and more uniformly firm through its entire surface and construction than a leather or india rubber belt can be made, so that the strength and strain of the belt is exactly even and straight in all its parts.

The hides of which leather belting is made are unequal in firmness and strength in their different parts, and however great the care taken in making the belt, it will still be unequal in its strength, firmness and pull, and the same is true of india rubber belts. It is impossible to unite the india rubber and canvas and vulcanize the india rubber on the canvas without making more or less weak places in the belt. In short, there never has been a belt made of leather, india rubber or canvas previous to this invention, that would take the place of complainant's belt. That the belt has these properties, and possesses these advantages, is established by the following proofs:

TESTIMONY OF JOHN MACWATTY.

7 Q. State, if you please, what advantage this belt has, as compared with india-rubber belting and leather belting?

A. As compared with rubber belting, it is very much stronger and more durable, and can be operated in a temperature where india-rubber belt cannnot be; and it affects a great saving of india-rubber, which is of great importance, india-rubber being a scarcer and dearer article; and, moreover, the Gandy canvas belt can be used for transmitting power wherever a belt is required, and where india-rubber cannot be used; thus, upon pulleys running at high velocity, india-rubber cannot be used, for the reason that they cut themselves to pieces and come apart, and where a shifting fork is used to transfer the belt from a fast to a loose pulley, an india-rubber belt is impracticable as it soon becomes disintegrated.

As compared with leather belting it affects a great saving of leather, which is also a scarce and dear commodity. It is quite as durable as the leather belt, and is much stronger. We furnish, as a substitute for a single leather belt, a 4-ply canvas belt, and as a sub-

stitute for a double leather belt, we furnish an 8-ply canvas belt, and our 8-ply canvas belt has nearly twice the strength of a double leather belt, and our 4-ply canvas belt bears about the same proportion to a single leather belt in strength; the two kinds of belt being equal in width. Our belt has also the additional advantage of being susceptible of being made of any desired length without splicing or seaming.

TESTIMONY OF SILAS B. BROWN.

7 Q. How does it compare in practical value with the leather and rubber belts?

A. For very many places it is an excellant substitute for leather, and some of our customers are replacing their leather belt; and it is very much better than a rubber for almost all purposes for which belting is used. * * * * * * *

15 Q. State, if you please, whether or not you have any letters from persons using the Gandy belt, showing their approval of the belt, and, if so, please to produce them?

A. I have such letters, and I here produce one from A. L. Bauman, in which the belt is highly spoken of.

Letter offered in evidence, and marked "Complainant's Exhibit Bauman's Letter, T. G., Exr., October 31, 1883."

COMPLAINANT'S EXHIBIT BAUMAN LETTER —T. G., Exr., 31st October, 1883.

Office of A. L. BAUMAN,
Manufacturer of Crackers, Cakes, etc.,
Nos. 425, 427, 429, 431 and 433 West 3d St.

DAYTON, O., August 17, 1882.

MESSRS. STEPHEN BALLARD & CO.,
New York.

Gents.—With five years' experience using belting of different make, I consider the Gandy cotton belting the best by a large majority.

The difficulty of leather belting in my line of business is the gases arising from anthracite coal, together with steam and heat, would parch the belts whether we oiled them or not. The cotton belt is not susceptible of above influences in the least.

Have used the Gandy belt now over two years, and not one ever tore.

I could not speak better if I wrote all day.

Yours very respectfully,
A. L. BAUMAN.

P. S.—I use 24 of the Gandy belts out of 27. The odd three are old leather belts, which, when worn, I will replace with cotton belts.

I also produce a letter from M. Mercy of similar tenor.

Letter offered in evidence, and marked "Complainant's Exhibit Mercy Letter, T. G., Exr., October 31, 1883."

COMPLAINANT'S EXHIBIT MERCY LETTER—T. G. Exr., 31 Oct., 1883.

Office of M. Mercy,
Manufacturer of Felt Hats,
22 to 36 Scott Street,

NEWARK, N. J., Sept. 28, 1883.

MESSRS. STEPHEN BALLARD, New York:

Gentlemen—It is with pleasure I take this opportunity of submitting my testimony as to the great value of the Gandy Cotton belting in hat factories, or in any case where trouble arises from slipping belts caused by water or steam. As to their durability, they are unsurpassed.

Very truly yours,
M. MERCY,
per N.

I produce also a letter from Allen Bros., commendatory of the belt.

Letter offered in evidence, and marked "Complainant's Exhibit Allen Letter, T. G., Exr., October 31, 1883."

COMPLAINANT'S EXHIBIT ALLEN BROTHERS' LETTER—T. G., Exr., 31st Oct., 1883.

Office of ALLEN BROTHERS,
Manufacturers of Hanging Paper,
Sandy Hill, N. Y., Dec. 29th, 1882.

MESSRS. STEPHEN BALLARD & CO.:

Gents.—We have yours of 27th inst. We have used one of your 10-in. "Gandy" belts nearly two years in a very hard place for a belt, frequently getting wet, and is in good condition yet. All others of recent purchase are doing well. We give you a new order to-day as follows:

40 feet 10-in. 8-ply, Gandy.
200 " 6-in. 6-ply, "

Send 100 feet 6-in. by National Express, and balance by H. R. R. R.

Yours very truly,
ALLEN BROTHERS.

I produce a similar letter from Knecht & Brown.

Letter offered in evidence and marked, "Complainant's Exhibit Knecht & Brown Letter, T. G., Exr., October 31, 1883."

COMPLAINANT'S EXHIBIT, KNECHT & BROWN LETTER—

T. G. Exr., 31st October, 1883.

Office of

PHŒNIX IRON FOUNDRY, KNECHT & BROWN,

195 & 197 Wade Street.

CINCINNATI, April 30, 1883.

Messrs STEPHEN BALLARD & Co.,
79 Chambers Street,
New York, N. Y.

Gents.—We are in receipt of your favor of the 25th inst., inquiring about the Gandy Cotton Belting. In reply would say, that we have been using it for two or three years, one of them on our main driving shaft from the engine, and it has given us better satisfaction than any leather belting we have ever used.

Truly yours,
KNECHT & BROWN.

I also produce a similar letter from Little & Rowe.

Letter offered in evidence and marked "Complainant's Exhibit, Little & Rowe Letter, T. G., Exr., October 31, 1883."

COMPLAINANT'S EXHIBIT, LITTLE & ROWE LETTER—

T. G., Ex., 31 Oct., 1883.

STEPHEN BALLARD & Co.,

Leather Belting,

79 Chambers Street.

NEW YORK, April 25th, 1883.

Messrs. LITTLE & ROWE.

Gentlemen.—We understand you have used the Gandy Cotton Belting. Will you be kind enough to give us your opinion of the belt, and whether or not it has proven satisfactory.

We shall be greatly obliged for your information.

Yours respectfully,
STEPHEN BALLARD & CO.,
B.

The Belting above alluded to has been in use about a year and has given entire satisfaction. Our Foreman says it has worn better than Leather Belting.

Rochester, April 26, 1883.

Yours truly,
LITTLE & ROWE.

I also produce a letter from the Winnebago Mills, written by Manager Mr. J. B. Merritt.

Letter offered in evidence and marked "Compainant's

Exhibit, Winnebago Letter, T. G., Exr., October 31, 1883."

COMPLAINANT'S EXHIBIT—WINNEBAGO LETTER—T. G., Exr., 31st Oct., 1883.

ROCKTON, Ill., Sept. 3d, 1883.

STEPHEN BALLARD & Co.,
79 Chambers St., N. Y.

Gentlemen.—In answer to your inquiry as to the working of the Gandy Cotton Belt we bought of you, we would say that we have it in use where it is constantly hot and often wet with hot water. It has now outworn any three rubber belts we ever used in that place and is still good. We bought it especially for that place as we had always been troubled to get a belt that would stand the heat and wet. This is doing better than we expected.

Yours truly,
BRADNER SMITH & CO.,
Per MERRITT.

We have also a great many other letters of the same tenor, but these are sufficient to show what our customers think of the belt. These letters were all received by us in answer to our inquiries as to the practical value of this belt, and they were all received within a day or two after their respective dates.

TESTIMONY OF JOHN HENRY PHILLIPPS.

1 Q. State your name, age, residence and occupation ?

A. My name is John Henry Phillipps ; am twenty-six years of age; I reside at present in Baltimore, Maryland; I am engaged in the manufacture of the Gandy belt.

2 Q. State, if you please, how long you have been engaged in handling and manufacturing the Gandy belt?

A. I went in the employ of Mr. Gandy in Liverpool, on the 1st day of January. 1881, and I remained in Mr. Gandy's factory for a period of about three (3) months, until I had learned the method of manufacturing his belt. Then I became traveling salesman for the sale of the belt in Wales, and in the middle counties in England. I continued as salesman in England until the 24th of September, 1881. I then came to the Baltimore factory, and have been engaged there upon the manufacturing of the belt ever since.

* * * * * * * *

7 Q. How does this belt compare with leather and india rubber belts in point of efficiency, strength and durability ?

A. The gripping power—by which I mean the power to transmit motion—of the Gandy belt is superior to either leather or rubber, and our 4-ply belt of corresponding widths is greater in strength than a single leather belt, and our 8-ply belt is very much greater in strength than a double leather belt; and in durability, in many places,

our belt is very much superior to leather belt; as compared with rubber belt of corresponding thickness, our belt has about three times the strength of a rubber belt, and it will certainly wear twice as long; the great objection to india rubber belts is, that they come apart, and the strength of the canvas used in their manufacture is very much injured in preparing it to receive the india rubber coating, and in the vulcanization of the rubber; but the greatest of all objections is, that the rubber belt abrades when running through guide-forks, or when running as cross-belts; the friction of the belt upon itself, or upon the guide-forks, tears the rubber off the canvas and causes the plies to separate; another objection to the india rubber belt is due to the fact that the rubber blisters and puffs up on the canvas when used in the open atmosphere and exposed to the influence of the sun and weather; the rubber peeling off the canvas in spots and destroying the belt; and another objection to the rubber belt is found in the fact that when the rubber is exposed to oil it becomes rotten and peels off the canvas, and where it is wet it slips on the pulley and pulls the rubber off the canvas.

The Gandy belt has great advantage over india rubber belt in these particulars, as it is not injured or affected by any of the circumstances I have mentioned; and as compared with leather belt, it has great advantage in the fact that it can be run in the open atmosphere without injury, and in wet, damp places without injury; and in hot, dry places, and in places where the belt is exposed to coal gas or other gases, and also to the fumes of acids, such as are used in fertilizing, and other chemical works, it does not sustain injury.

Another advantage which the Gandy belt has over the leather belt is, that it is made of one continuous piece, of even thickness and strength; it costs much less to make.

8 Q. State, if you please, whether the Gandy belt is giving general satisfaction to those who have bought and used it, so far as you know?

A. It has; I have a great many letters from our customers commendatory of the belt; and the demand for the belt is continually and rapidly increasing.

Testimony of Maurice Gandy.

19 Q. State, if you please, what advantages your belt has as compared with india-rubber belting or leather belting?

A. I will begin with leather belting. It differs from leather belting in many prominent points; first, it is absolutely straight and alike over the whole belt, without joint or splice from end to end, and being thus all alike it never gets crooked or runs in a snaky fashion, but transmits the power always the same, there being no loss of power due to, or arising from, one edge of the belt being slack and the other tight, as is always the case with leather. It has nearly double the gripping power and strength of leather, and being free from splices it transmits the power in a smooth, even manner

without any jump, which is shown clearly when driving dynamos for electric lighting.

This is clearly exemplified in the fact that it was the only kind of belt on exhibition there out of many others that was awarded a premium for driving dynamos at the Great International Electro Technical Trial, held at Munich in 1882, as well was it the only belt awarded a price at the Great International Engineering Exhibition, held at Tynemouth, England, in 1882, where it was awarded the silver medal of that exhibition for the steadiness with which it drove the dynamos or electric lighting, where the belt was in competition with many other belts.

It also differs from, and is superior to leather belting, in that unlike leather it will work in any situation, whether wet or dry, hot or cold, where a belt can be used. Its superiority over leather in climatic changes is exemplified in the fact that as soon as it was introduced in the great corn fields of California and West for agricultural purposes it at once assumed a first position by rapidly superseding every other kind of belt in that region. It is further exemplified by the fact, which can be shown by letters now in the Baltimore office from the great and deep mines, such as the "Comstock" and the "Silver King" mines of the West, where these belts have to work deep down in the earth amidst the hot water exuding from the walls and surfaces of these mines. In ordering belts for these mines the parties in their letters say, that nothing that they have tried in these exceptional positions give the satisfaction that does the Gandy belt. They say they have tried in those damp, hot situations, both leather, rubber and other kinds, none of which will do the work the Gandy belt does.

In respect to leather, it is not only very much superior in its driving powers and durability, but at the same time it is very much cheaper and effects a large saving to users of belting, hence the rapid increase in the demand for this belt. Its use in mills and for other purposes effects a very large saving in the quantity of leather consumed, which can be diverted to other necessary and useful purposes in the arts, such as boots, shoes, harness and the like, which must necessarily tend to keep down the ever-increasing price of leather.

As to the india-rubber belt, it differs essentially in several most important points; first, in the manufacture of rubber belts, the cotton cloth, which is the base of the rubber belt, has to pass several times over a heated cylinder to dry out the moisture before the cloth will take the gummy mixture of rubber, which is to unite or cement together the folds of the cloth, forming with the rubber the rubber belt. This drying process not only dries out the moisture of the atmosphere that is in the cloth, but also the natural "life-oil," or moisture of the cotton filament itself, thus rendering it not only brittle by the kiln-drying, but puts it in condition to rapidly absorb moisture, and this absorbing goes on immediately the rubber belt is finished, and becomes an agent to disintegrate the belt. It occurs thus; this high dried cloth not being saturated by, but merely coated

with the rubber, takes up moisture, which, in a short time, causes what are termed air-puffs in the belt, and these as they pass round the pulley becoming compressed, act as a wedge and splits off the rubber from the cotton cloth. This again soon causes the rubber to peel off, which ends in an early destruction of the belt from that cause. The rubber belts, as is well known, unlike the Gandy, will not work as crossed belts, for the reason that the two surfaces running across each other causes an abrading action to take place at once, and the rubber peels off by reason of the friction between the two surfaces as will be understood by any school-boy who uses rubber to erase pencil marks: thus the so-called rubber belt, denuded of its rubber, rapidly absorbs moisture, and when crossed is very rapidly disintegrated. Rubber belts, when put to work in wet situations, will not grip the pulley, but slip by reason of the moisture upon the surface of either the belt or the pulley.

A still further objection to the rubber, is the fact that when working in damp places it absorbs moisture, which rapidly rots the cloth, and thus the belts go to pieces.

From what I have already said, it will appear that my belt is very much stronger, is very much more durable, and is very much more efficient in transmitting power, and it effects a very great saving in india-rubber, which is getting to be a more and more scarce and dear commodity.

* * * * * * * * * * * *

21 Q. To what features in the construction of your belt do you attribute its success?

A. To its method of manufacture, which may be shortly stated thus: The weaving of the cloth hard to obviate, as far as it is possible to do, the tensile stretching of the belt when working; the special manner in which it is folded, so as to insure the protection of the salvages of the canvas, and the smooth edges of the belt when finished; the uniting of the different folds or plies together by rows of stitching, so as to bring the several plies of the cloth in absolute contact; and finally the application of an oil, or a mixture of oils to the belt, for the purpose of softening or rendering pliable the hard woven canvas, so that it will accommodate itself readily to the form of the pulley, and prevent cutting, and at the same time to protect it against the effects of damp or atmospheric changes.

It is unnecessary for me to describe the manner of folding my belts, as it is sufficiently shown in the specimens of belts already put in evidence.

TESTIMONY OF T. P. RICHARDS

* * * * * * * * * * * *

11. Q. State, if you please, how the Grandy belt compares in point of quality with leather or india rubber belting?

A. It is equally as good as leather for any purpose, and for many purposes it is better and more durable, and very much cheaper, and is also very much more durable than a rubber belt, and will work

in many places where neither rubber nor leather will work—in short, I think Mr. Gandy's belt a very great acquisition to the public.

TESTIMONY OF R. D. HARRISON.

A. My name is Robert Dex Harrison ; I am thirty-seven years of age, and reside at Bartley, in Yorkshire, England, and I am a manufacturer of leather belting.

2 Q. State, if you please, how long you have been engaged in manufacturing leather belting ?

A. For thirteen years.

3 Q. State whether you are acquainted with Maurice Gandy ?

A. Yes ; I know Mr. Gandy.

4 Q. State, if you please, whether you are acquainted with a certain canvas belt known as the Gandy belt, such as the specimen now shown you marked Complainant's Exhibit, W. Benn ?

A. Yes ; I am.

5 Q. State, if you please, how long you have known such belt ?

A. About five years.

* * * * * * * * * * * * *

7 Q. What, in your opinion, is the practical value of the Gandy belt as compared with leather belting ?

A. I think the Gandy belt for many purposes is superior to leather belting.

TESTIMONY OF FRANCIS FLEMING.

* * * * * * * * * * * * *

A. My name is Francis Fleming ; I am forty years of age ; I reside at West Grove Mills, Halifax, Yorkshire, England, and I am a leather belt manufacturer by occupation.

2 Q. State, if you please, how long you, or your firm, have been manufacturing or dealing in belting ?

A. My firm of Thomas Fleming & Son, have been manufacturers of belting since 1797. I have myself been connected with the firm for the past twenty-seven years. I began when I was fourteen years of age and have continued down to the present time.

3 Q. State if you are acquainted with Maurice Gandy ?

A. I am.

4 Q. State if you are acquainted with the canvas belting manufactured by Maurice Gandy ?

A. I am ; and have been for about seven years.

5 Q. Please to examine the specimens of belt now shown you and state if you recognize it as a specimen of the belt referred to in your last answer ?

A. It is a specimen of the belt known to me as the Gandy belt.

Specimen offered in evidence and marked "Fleming's Exhibit."

* * * * * * * * * * * * *

7 Q. What, in your opinion, is the practical value of the Gandy belt as compared with leather belting ?

A In driving most machinery I should consider it equal to leather, and in damp places where the atmosphere suddenly changes, it is better than leather.

TESTIMONY OF H. W. PEACE.

A. Harvey W. Peace ; am fifty-two years of age ; reside at No 152 Ainslie street, Brooklyn, E. D. ; am a saw manufacturer ; am President and Superintendent of the Harvey W. Peace Company.

2 Q. State whether you are acquainted with a certain belt made of folded cotton canvas, and known as the Gandy belt, like the specimen now shown you, marked "W. Benn ?"

A. Yes, sir ; I am.

3 Q. Please to state what experience you have had in the use of this belt, if any, and state what you know as to its novelty ?

A. I have used it in my works continually since the fall of 1880. I never saw a belt like it until I adopted it in my factory in 1880.

4 Q. What satisfaction does the belt give you, as a practical belt for driving machinery ; and how does it compare with leather belting ?

A. I like it much better than leather belting for some purposes, namely, damp or wet places. I think it runs much better than leather belt, as it doesn't stretch or get uneven by tension. It retains its shape much longer than the leather belt, and I think it is much more durable. In fact, my experience is it will last double the time leather belt will.

TESTIMONY OF W. A. D. BAUMAN.

A. W. A. D. Bauman ; am 40 years of age ; reside in Jersey City, New Jersey ; am foreman of the belt factory of W. Ames & Co., Jersey City, New Jersey.

2 Q.. State whether you are acquainted with Maurice Grady or any one connected with the Grady Belting Company?

A. I am not.

3. Q. State how long you have been foreman of the Ames Belt Works, and whether you have in use in such factory, one of the Gandy belts, and if yea, state how such belt compares with leather belting, and whether it is a new manufacture.

A. I have been foreman here for six years. I have in use in this factory six Gandy belts. I have one six-in. belt, which has been in constant use for three years, and another six-inch belt in use nine months. The belts are used in operating spike, bolt and nut machines, and they operate in very hot places, and give excellent satisfaction. I think for large driving belts, they are superior to a leather belt. They do not get rotten on our machines as quick as the leather belts do. I have in use a good many leather belts in the factory, but I am now replacing them with cotton belts as fast as they give out, as they are cheaper and give better satisfaction in our factory. These belts also draw straighter and stretch more evenly than the leather belts, and hug the pulley better. I recognize the

specimen marked Exhibit, W. Benn, as a piece of the same kind of belt I am referring to. The belt is a new manufacture as far as I know. I never saw one like it before I saw these.

TESTIMONY OF C. DELAFIELD.

A. My name is Clarence Delafield ; am fifty-two years of age ; reside at New Brighton, Staten Island ; am a civil and mechanical engineer.

2. Q. State how long you have been a mechanical and civil engineer, and what, if any, experience you have had in the use of belts for driving machinery?

A. I have been a mechanical and civil engineer for thirty four years, and I have used belts for driving machinery more or less during the whole of that time.

3. Q. State if you are acquainted with Maurice Gandy, the complainant here, or with any of the members of the Gandy Belting Company.

A. I am not.

4. Q. Please state whether you have examined the cotton belting known as the Gandy belt, and of which the specimen now shown you and marked "Exhibit W. Benn," is a sample?

A. I have.

5. Q. How, in your opinion, does this belt compare in point of efficiency and durability with India Rubber and leather belting?

A. I have had no experience in the use of this belt, but would anticipate that when exposed to heat, it would be decidedly superior to the rubber belt, and where exposed to alternations of moisture and dryness, would prove superior to the leather belt. The surface friction of the Gandy belt should be superior to the leather belt, and decidedly more durable than the rubber belt. Speaking of the belt generally, and judging from my experience in such matters, I should think this belt would be a thoroughly efficient and durable belt. In machine shops, and upon agricultural implements, I should think the belt would be invaluable, and in all places of exceptional exposure to extreme heat and cold, moisture and dryness.

Some of these witnesses, the Court will observe, are manufacturers of leather belting, but they bear witness, nevertheless, as we have seen, to the superiority of complainant's belt.

Now, by the record of the Patent Office, it appears that the application was rejected, among other things, upon a British patent to William Edward Newton, dated January 26th, 1858, and

also upon a British patent to Charles Stevens, dated April, 18th, 1861, and upon an American patent granted to Edwin A. Street, dated April 14th, 1874. All of these patents appear in this case as Exhibits.

NEWTON'S PATENT.

The British patent to Newton is Complainant's Exhibit "Newtons's English Specifications." This patent is not for a belt, but it is for A NEW OR IMPROVED FABRIC, INTENDED PRINCIPALLY AS A SUBSTITUTE FOR LEATHER."

The inventor says:

"The fabric which forms the subject of the invention is composed of cotton or other fibrous substances, either woven into cloths or in an *unwoven* state, *saturated or coated with a compound of linseed oil and burnt umber*. This compound is prepared by boiling in every gallon of oil, about three pounds of umber in a powdered state, for such a length of time that the composition, when cool, will roll in the hands without sticking. The fabric may be made in forms suitable to the various purposes for which it is intended to be employed, as for instance, for the soles of boots and shoes, covering for trunks, traveling bags, caps, cap fronts, or as a substitute for carriage and harness leather, or for hose, pipe or *machine belting*. The mode of producing the fabric differs to some extent according to the form in which it is to be produced, or the purpose for which it is intended to be used; *but the elements thereof are in all cases the same.*" * * * * * * * * *

"To make machine belting several thicknesses or plies of strong cotton cloth, or canvas, are employed; these are saturated, coated and *cemented together* with the compound. Sometimes the required number of plies are formed by taking a woven tube, or a tube formed by folding a piece of canvas or cloth, and sewing the *edges* together; it is then to be flattened out, and *within it is laid a piece* of cloth folded, so that with the tube itself the required number of plies will be produced. Sometimes a piece of cloth of the required width is folded the required number of times to make the number of plies; and a seam run along the outer *edge* of the piece through the whole of the plies by means of a sewing machine. *Every one of the spaces between the plies is then filled with the melted or still fluid compound of umber and oil in the same manner as above directed for preparing the hose pipe*, and then the belt is laid upon the steam table, and after

coating the exterior with the compound the pressure roller is passed over it to force out all the superfluous compound and cause the *cementing together of the several plies*, after which it is to be cured by being hung for a few days in a dry apartment. When the exterior coating is hard it is sufficiently cured. The compound in the interior being unexposed to the atmosphere will remain soft, and thus cause the belt to have the requisite flexibility, while the exterior surface is *very* hard and tough, and capable of wearing for a very long time."

That is all there is in this specification about belts. The inventor describes and claims a new *fabric* intended principally as a substitute for leather, and incidentally he shows various uses to which it may be put. But does this patent describe the complainant's belt? Manifestly it does not. The use of this fabric in the manufacture of belts is purely speculative and utterly impractical. The belt is proposed to be made of several thicknesses of canvas *saturated*, *coated* and *cemented* together with a mixture of boiled linseed oil and umber of the consistency of putty when cool. The inventor relies upon this composition to cement together the several plies of canvas composing the belt. The stitching along *both edges* of the belt is done merely to aid in the operation of making the belt, but is not relied upon to give it strength and cohesion; for manifestly if the cement is not strong enough to hold together the several lamina, the stitching at the *edges* only, would not prevent its going to pieces. It is common knowledge that boiled linseed oil and umber will after a little time become as hard as boiled linseed oil mixed with white lead, or any other pigment, and it will set and harden very much quicker than boiled oil and white lead. A belt made upon the plan proposed by this inventor would be as hard and stiff as a belt made of wood, and whether it was made of hard or soft canvas would be utterly immaterial, for the hot cement would enter the threads and interstices of the canvas and stick them together in one common mass. If it did not stick and hold them together it would not accomplish

the purpose of the invention, and if it did it would not be material whether the canvas were hard or soft woven. The whole mass would get as hard as a stick, and would go to pieces on the pulley in less time than it would take to make it. Let us assume that the cement would remain soft in the inside of the belt, and get very hard on the outside, just as stated in the specification, and let us assume such belt to be put upon a pulley of, say, three or four inches in diameter, and running at high velocity. The inside lamina of the belt next to the pulley would wrinkle, being hard, and cut itself off as if a knife had been drawn across it, and the dry cement would disappear in dust, and the soft cement inside would not hold together the several laminæ.

This belt of Newton has not the *combination* of *ingredients* of the complainant's belt, and as a product it is wholly different. It is not made of *hard woven canvas, folded and stitched together over its entire surface and saturated with oil.* It has none of the *properties* of the complainant's belt. *It has no more strength than the cement by which it is stuck together*, plus the canvas, and if the cement yields or gives out, the belt has only the strength of its separate lamina, as in that case the strength would not be on the united lamina, but only on the inside lamina, near the driving power. The cement will break as soon as the belt is put in service upon the pulley, and as soon as the cement is broken there is nothing to prevent the belt from going to pieces. In short, Newton's proposed belt has no practical value whatever. His patent was put in the hands of the several practical belt makers and users testifying for the complainant, and their concurrent testimony respecting it is that the belt is of no value.

MACWATTY'S TESTIMONY.

13 Q. Please to examine the English specification I now show you, being the provisional and complete specification of the British

Patent No. 140, granted to William Edward Newton, dated 26th January, 1858, being Complainant's Exhibit Newton's English Specification, and state whether you have read it and understand the invention described by it.

A. I have read it and think I understand the same.

14 Q. Of what practical value would a belt be, made upon the plan described in this specification ?

A. The belt made upon the plan described in this patent of Newton would be of no practical value ; a belt made upon that plan running upon a six inch pulley, for example, at high velocity, would go to pieces in a very short time ; I doubt very much if there was ever a belt made upon that plan ; the idea of covering the belt and sticking the different plies together, with a cement composed of umber and oil, is a surd ; the belt would not last as long in use as it would take a man to make it ; the belt described in Newton's specification, depends upon the cement for holding the plies together—it being stitched along one of its edges only ; a belt made in that way would very soon become disintegrated upon an ordinary sized pulley at an ordinary velocity ; the several plies would become separated, the belt would stretch unequally, and would run off the side of the pulley ; and, moreover, after the cement became hard, even if the cement had strength enough to hold the plies together, the belt would bite itself to pieces on the pulley ; a belt made upon the plan described in Newton's specification, and running between shifting forks, would crumble and tear itself to pieces in a few hours ; such a belt as that would be very much inferior even to an india-rubber belt, and would, therefore, under any circumstances, be of no practical value to manufacturers ; Newton's patent is really for an enameled cloth as a kind of substitute for leather, and the idea of making a belt of it is a mere suggestion, that evidently has never been put in practice, for no one that has ever made or used a belt would think of making a belt as described in this specification, for such a belt for all practical purposes would be absolutely worthless.

15 Q. How does the belt suggested in this specification of Newton's differ from the Gandy belt ?

A. First, it isn't folded like the Gandy belt ; second, it isn't stitched like the Gandy belt ; and third, it isn't saturated with oil like the Gandy belt, add if it were calendered and stretched like the Gandy belt, preparatory to using it, would be all pulled to pieces in the operation ; the cement would be crushed into powder, and the several plies would be loosened from each other ; the belt described in Newton's specification depends entirely for its practical value on the cement used in its construction, whereas, in the construction of the Gandy belt, there is no cement used at all ; the Gandy belt depends for its practical value upon the method of folding, stitching, oiling, stretching and calendering the canvas, all of which are necessary to make the belt firm, smooth and straight, and the necessary strength —in short, I know of no other method of making a belt of canvas that would be of any practical value.

TESTIMONY OF L. B. BROWN.

12 Q. Please to examine the provisional and complete specification making part of British Letters Patent No. 140, dated January 26, 1858, granted to William Edward Newton, for new or improved fabric, intended as a substitute for leather, and state whether you understand the belt suggested in that specification?

A. I have examined it and understand it.

13 Q. What, in your opinion, would be the practical value of a belt made upon the plan of that specification?

A. It isn't a practical invention applied to belting; I do not think a practical belt could be manufactured on that plan; the rows of stitching are only on the edges, and between the edges the belt would come to pieces, and allow for the formation of air puffs, which immediately bring about the disintegration of the belt; the cement covering the belt would become hard and crumble.

TESTIMONY OF J. H. PHILLIPPS.

12 Q. Please to examine the provisional and complete specification now shown you, making part of Newton's British Patent No. 140, dated 26th January, 1858, and state whether you have read it and understand the invention described by it?

A. I have read and I understand it.

13 Q. Please to state how the belt described by that patent differs from the Gandy belt, if at all.

A. The patent is really for the manufacture of a material as a kind of substitute for leather. It consists of two or more plies of canvas, stuck together at the edges, or made in the form of a tube, with one or more plies drawn inside the tube. The several plies of the canvas being stuck together with a cement composed of oil and umber. A belt made in this way, as soon as it got dry, and put upon a pulley running at high velocity, would go to pieces in a short time. The cement would break up, and the several plies would separate, so that the belt would thus disintegrate. Belts made in this way, and stuck together with thick cement composed of oil and umber, would disintegrate even if it were stitched, because the belt, in running upon a small pulley at high velocity, would crumble the cement, leaving the several plies of canvas loose. The belt described in this patent is no more like a Gandy belt than it is like a leather belt or a rubber belt, and it is of no value as a substitute for either.

TESTIMONY OF MAURICE GANDY.

26 Q. I place in your hand the specification accompanying British Letters Patent No. 149, granted to William Edward Newton, January 26th, 1858. Please to state whether you have read and fully considered it?

A. I have.

27 Q. State, if you please, whether you have seen or heard of a belt made upon the plan described in that patent ?

A. I have never seen or heard of a belt made upon the plan described in this patent, but I have seen belts composed of several thicknesses of canvas stuck together with glue and various other cements, but never saw one that was stuck together with a cement made of boiled oil and umber.

28 Q. State, if you please, of what practical value a belt made upon the plan described in Newton's specification would be ?

A. I know of my own practical experience that such a belt would be of no practical value whatever ; I have seen belts composed of canvas stuck together with the strongest cement that could be found, and they invariably go to pieces as soon as they are put in use on pulleys ; many attempts have been made to make such belts, but without success, even where the strongest and most cohesive cement has been used ; the idea of sticking the canvas together with boiled oil and umber, which does not make a cement of any strength, is simply absurd ; the objections I have pointed out, to a belt made upon the plan of Newton's specification, I know to be well founded from my own experience, and there are other objections to such a belt which are, however, fully stated in the testimony of Mr. Macwatty and Mr. Phillipps, which I have read, and which I know to be true from my own practical experience.

TESTIMONY OF T. P. RICHARDS.

9 Q. I place in your hands also the specification accompanying British Letters Patent No. 140, of 1858 ; please to read it, and state, if you please, whether the belt described in that patent is substantially the same as the Gandy belt ?

A. I have read the specification you place in my hands, and I find described a plan of making a belt which consists substantially of several layers of canvas stuck together with a cement made of umber and oil, and with one row of stitching along one edge of the belt. I do not believe it is possible to make a belt upon this plan that would be of any practical value, and it is certainly not like the Gandy belt. It is not folded, stitched or oiled like the Gandy belt, and has none of its essential qualities, and it would be utterly useless as a substitute for the Gandy belt.

TESTIMONY OF R. D. HARRISON.

10 Q. I place in your hands the specification accompanying British Letters Patent No. 140, of 1858, granted to William Edward Newton, please to read it, and state whether, in your opinion, a belt made upon the plan of that patent would be of any practical value ?

A. I have read the specification, and am of the opinion that a belt made as described in this patent would be of no practical value ; it would disintegrate in a short time ; it has none of that strength and stability necessary to make a practical belt.

11 Q. State, if you please, whether you have ever seen any belting made upon the plan described in the specification of Newton referred to in your last answer ?

A. No, sir ; I never have.

12 Q. State, if you please, whether, in your opinion, the belt described in the Newton patent has any of the essential features of the Gandy belt ?

A. No, sir ; I don't think it has.

13 Q. State, if you please, what opportunity you have to see different varieties of belting in operation in England ?

A. The town of Bartley, in which I live, is a large manufacturing town, and, indeed, the whole district adjacent to Bartley is engaged in manufacturing different varieties of goods, and use great quantities of belting, and I have, moreover, visited most of the large manufacturing towns in England, and am familiar with the different varieties of belts in use.

TESTIMONY OF FRANCIS FLEMING.

8 Q. I place in your hands the specification accompanying British Letters Patent No. 140, of 1858, granted to William Edward Newton. Please to read it, and state whether, in your opinion, a belt made upon the plan of that patent would be of any practical value ?

A. Practically for belting it is useless.

9 Q. State, if you please, whether you have ever seen any belting made as described in this patent of Newton's ?

A. Never.

* * * * *

13 Q. Referring again to Newton's British patent No. 140, of 1858, please to state whether, in your opinion, that specification describes a belt having any of the essential features of the Gandy belt ?

A. It certainly does not.

TESTIMONY OF C. DELAFIELD.

7 Q. I place in your hand the specification making part of British Letters Patent No. 140, of January 26, 1858, granted to William Edward Newton, for a new or improved fabric intended principally as a substitute for leather, and also a copy of British Letters Patent No. 949, of April 18, 1861, granted to Charles Stevens, for improved bands for transmitting motion to machinery, and also copy of the specification and drawings of the Letters Patent of the United States, granted to Edward A. Street, for improvements in machine belting. Please state whether you have read all these specifications, and fully considered the manner of making and the nature of the belt produced described in these several patents respectively ?

A. I have read all of these specifications, and I have thoughtfully considered the belts described by them.

8 Q. State, if you please, whether, in your opinion, the belt de-

scribed in either of the patents is the same, or substantially the same, as the Gandy belt ?

A. From my experience in the use of belts, I should judge that the belt described in the Newton specification would be of no practical use in driving machinery. In his specification Newton claims "a fabric composed of cotton or other fibrous substance, woven or unwoven, saturated or coated with a compound of linseed oil and burnt umber." This combination depends for its value on whatever merits linseed oil and burnt umber boiled together may possess. As a paint it is good, if used hot, but its tenacity is neither greater nor better than white lead and other paints, and is certainly not to be compared to the longitudinal seams of sewing as a means to cause the plies of the belt to adhere, and would add neither tensile strength nor endurance of friction to canvas ; and hence could not and would not be used by Gandy, as of any value whatever in making his belt ; and does not apply, either partially or as a whole to the invention of Gandy. Gandy's belt is a compound fabric, composed of hard-woven canvas, folded to protect the selvages and form smooth edges to the belt. The several plies of canvas are thoroughly stitched together, the stitching itself adding greatly to the strength of the belt, in addition to the strength occasioned by drawing the several plies of canvas closely upon each other. The element of hard spun and hard-woven canvas is made very effectual in the Gandy belt by making it of several plies of this variety of canvas firmly united the one upon the other, by the stitching, and the element of pliability is obtained by the oil with which it is treated in its manufacture. The belt of Newton has none of these qualities. Assuming a belt to be made upon the plan described in Newton's specification and put upon a pulley running at comparatively high velocity, the belt, I think, would go to pieces in less time than it would take to make it. The oil and umber being dried would be wholly insufficient to hold the several laminæ of the belt together, and would, moreover, I think, crumble to the consistency of powder, leaving the belt in several separate laminæ and utterly useless. The belt of Newton is not folded like the Gandy belt. It is not stitched like the Gandy belt. It is not composed of several lamina of hard woven canvas. It is not softened by oil. Indeed, it is as unlike the Gandy belt as one belt can well be unlike another. It has only one element of the Gandy belt in it, and that is the element of canvas. In every other respect it is wholly unlike it, and it seems to me to be as completely worthless as the Gandy belt is completely effectual. Certainly no practical manufacturer would think of making or using a belt like the belt suggested in the Newton specification. The patent is really for a fabric, and the belt is a mere suggestion of one of the uses to which the fabric might be put ; but it is a use that no one familiar with the qualities necessary to make a driving belt for machinery would even suggest."

STEVENS' PATENT.

The next British patent to which I beg to direct the attention of the Court, and to which reference was made by the Patent Office, as anticipating complainant's invention, is that of Charles Stevens, Complainant's Exhibit, Stevens English Specification. The patent is dated April 18th, 1861.

If the patent to Newton does not anticipate the invention of the applicant, the patent to Stevens certainly does not. The belt of Stevens is not made of *hard woven canvas*. It is not made of *folded canvas*. It is not a *laminated* belt. It is not *stitched or oiled*. It is simply a belt woven to the desired width and thickness, finished when it comes from the loom. The witnesses for complainant sufficiently point out the difference between the belt of Stevens and that of Gandy. It is only necessary to read the evidence without comment.

TESTIMONY OF JOHN MACWATTY.

* * * * * * * *

16 Q. Please examine the provisional and complete specification of British patent No. 949, dated April 18, 1861, granted to Charles Stevens, and being Complainant's Exhibit Stevens' English Specification ?

A. I have read it and believe I understand it.

17 Q. State how the belt described or suggested in that patent differs from the Gandy belt ?

A, Stevens' belt consists of cotton woven in bands of the desired width. It is not a belt composed of folded canvas stitched together, by which great strength is obtained. I have, and here produce, a specimen of belt made like this described in Stevens' patent.

Specimen of belt offered in evidence, and marked Complainant's Exhibit Stevens' Belting. 29th Oct., 1883. T. G., Ex'r.

This belting is useful for some purposes in flour mills, for such as elevating flour and the like, where very little strain is placed upon the belt ; although the belt is now in the market, and used for elevating flour, it is not used in any other way, and is utterly unfit for driving machinery, it being very sleazy and wholly wanting in the firmness necessary to make a practical belt ; both selvages of the belt are exposed to the wear of the shifting forks, and the belt, depending for its strength more upon the selvages than anything else, is utterly destroyed as soon as the selvages are worn off. It is impossible to

make a belt of any practical value for general use of a single thickness of woven fabric. If the warp and weft be made of thick, heavy cord, necessary to yield the desired strength, it is impossible to beat it up in a loom tight enough to make it smooth and firm, and, moreover, the edges of the belt will be very uneven; the belt will stretch unevenly and will not hug the pulley closely, so as to make it draw well or run straight. To make a belt of the desired strength and firmness and solidity, it must be composed of several thicknesses or plies of hard woven canvas folded so as to bring the selvage inside, make the edges smooth and be thoroughly stitched together, so that the strength of the several thicknessess of canvas are united and equalized, by which the same homogeneous texture is obtained through the entire belt, substantially the same as characterizes the fibrous texture of the leather belt. Where the belt is made of a single thickness of woven fabric, as soon as the warp or weft of that fabric is broken or worn off the belt is destroyed, and such belts are very short-lived, necessarily, in running through shifting forks, where the edges are exposed to the constant wear of the forks; and in case of a thick belt made of a heavy thread and spun and woven tight enough to give it any practical strengtk or firmness, it will cut itself to pieces when running on a small pulley in less time than it would take to make the belt.

TESTIMONY OF L. B. BROWN.

10 Q. Please examine the provisional and complete specification making part of the British Letters Patent, No. 949, and dated April 18, 1861, granted to Charles Stevens, and state, if you please, whether you have considered the belt described by that specification.

A. I have considered it, and think I understand the same.

11 Q. State, if you please, how the belt described by this specification differs from the Gandy belt?

A. This seems to be a solid cotton belt, but nothing is said about its being made of cotton duck and folded and stitched together as the Gandy belt is. I should think it very similar to the solid cotton belting made by the Russell manufacturing Co. It differs as much from the Gandy belt as it is possible for one cotton belt to differ from another. It would be impossible to make a belt in this way, having the solidity and strength of the Gandy belt. This belt is different from the Gandy belt in structure, and I believe very much inferior in strength and durability.

TESTIMONY OF J. H. PHILLIPS.

* * * * * *

10 Q. Please examine the provisional and complete specification making part of British Letters Patent No. 949, dated April 18, 1861, granted to Charles Stevens, being Complainant's Exhibit Stevens English Specification, and state whether you have read and understand the invention described by it.

A. I have read the specification, and I understand the invention described by it.

11 Q. State, if you please, how the invention or belt described in that specification differs from the Gandy belt, if at all.

A. It isn't like the Gandy belt in any sense. It isn't folded; it isn't stitched; it isn't oiled. It consists of a single thickness of woven fabric—woven of the width the belt is intended to be. The specimen produced by Mr. Macwatty, and marked "Comp'ainant's Exhibit Stevens Belting," sufficiently illustrates the kind of belt as produced by Stevens' method. It is wholly unfit for the transmission of power, and is used in flour mills and similar places, where little or no strain is necessary. It is used in such places for elevating flour by means of little buckets attached to it. All the objections that I have heretofore pointed out to belts made of a single thickness of woven fabric, are applicable to this belt. Even if you were to take two or three of these belts and stitch them together, the selvage of the belt would be exposed to the wear of the shifting forks, and would be soon destroyed. As a manufacture, the belt is wholly unlike the Gandy belt, as is manifest upon mere inspection of it.

TESTIMONY OF MAURICE GANDY.

29 Q. I place in your hands the specification accompanying British Letters Patent No. 949, dated April 18th, 1861, granted to Charles Stevens; state, if you please, whether you have read this specification and fully considered it?

A. I have read it and I have fully considered it.

30 Q. State, if you please, how the belt described or suggested in that patent differs from the Gandy belt?

A. In addition to the distinction between my belt and the belt described in the Stevens patent, pointed out in the testimony of Mr Macwatty, Mr Phillipps and Mr. Brown, all of which I have read and know to be true, I desire to say, first, that the Gandy belt is made of cloth that is woven of an extended width, with one single shed and one single warp, which is by that single operation driven up hard and held hard or tight; then, after the cloth is woven hard, it is folded and stitched, and thus forming the different plies, when folded, of a cloth that has been held up hard in the weaving and, hence, cannot slacken back to a soft cloth. In contradistinction to this, the Stevens belt is woven the different thicknesses or plies in one operation, by which it is impossible to hold each thickness hard or tight while the other thicknesses are being woven. To exemplify this, I will briefly describe the manner of weaving such belts as Stevens', thus: In weaving such belts of, say, four plies or thicknesses, the whole of the warps of such four plies or thicknesses are wound on one beam; then the first set of warps are cast upward into a shed for the shuttle to pass through to form the first thickness or ply; the weft is then passed through that shed and the reed drives it home; the second set of warps to form the second ply or thick-

ness, are then cast upward to form the second shed for the shuttle to pass the weft through, when the reed again drives this second weft home; the third set of warps to form the third ply or thickness are then cast downward to form the third shed for the weft to pass through the third time, which again is driven home by the reed; the fourth and last set of warps are then cast downward to form the fourth or lower shed for the weft to pass through and form the fourth ply or thickness, which the reed again drives home. It will thus be seen, that during the last three strokes or motions of the loom the first set of warps has remained in a state of quiescence, but subject to the vibration caused by the reed driving up each successive three other strokes, and such vibration has caused the first set of warps to ease off and allow the weft to give out the tightness that was imparted to it by the reed, and this is more especially the case, as such first set of warps have not been, so to speak, locked over the first weft to keep it in the position to which it was driven by the reed, and this casting off takes place with each successive set of warps, as each has to remain still after the weft is passed through and driven home until each of the other three sets of warps has had the stroke given to it. Thus, each set has to take the vibrations caused by the impact of the reed in each of the three successive strokes on the other three sets, while that special set is in a state of rest.

On a separate beam are wound several warp threads so as to form locking threads or warps, the function of which is to pass up every fourth stroke or completely down every fourth stroke, as the case may be, so as to form a through and through set of locking warps to lock or bind the four thicknesses or plies already woven firmly together, independent motion being given to these by the heddles. It will thus be seen that there are five clear and distinct motions in weaving a belt like Stevens', during which separate motions to the several thicknesses or plies it is impossible, as shown, to hold the weaving of each ply or thickness, up tight or hard, resulting in the production of an article that is of itself soft in the weaving, and, hence, liable to continuous stretch when at work driving machinery.

This same description of woven belt has been woven of various materials, such as jute, hemp, flax, wool and cotton, by many makers, several of whom have abandoned the manufacture, as the belt when produced proved to be of little or no value for driving machinery.

The foregoing is the best known method in England of weaving this belt or band. The method I have described is substantially the same as that described in the Stevens' patent, varying from it only in some unimportant details of the locking, the warps and plies together. The belt produced by Stevens' method of weaving is exactly like the specimens illustrated by Complainant's Exhibit, "Stevens Belt."

It is in no sense like my belt, nor is it possible to make a belt described by the Stevens' patent that could be used as a substitute for my belt.

TESTIMONY OF T. P. RICHARDS.

8 Q. I place in your hands the specification accompanying British Letters Patent No. 949 of 1861; please to read it, and state, if you please, whether the belt described in that patent is the same, or substantially the same, as the Gandy belt?

A. No, sir: it is an entirely different belt, and is in no sense a substitute for the Gandy belt.

TESTIMONY OF R. D. HARRISON.

9 Q. I place in your hands the specification accompanying British Letters Patent No. 949, of 1861, granted to Charles Stevens; please to read it and state whether, in your opinion, it describes a belt substantially like the Gandy belt?

A. No, sir; it does not. This belt is quite common. I have seen it very often, but it is in no sense a substitute for the Gandy belt.

TESTIMONY OF FRANCIS FLEMING.

10 X-Q. I place in your hands the specification accompanying British Letters Patent No. 949, of 1861, granted to Charles Stevens; please to read it and state whether, in your opinion, it describes a belt substantially like the Gandy belt?

A. Certainly not; in no respect.

11 X-Q. State, if you please, how it differs from the Gandy belt?

A. Well, to begin with, the belt described by Stevens' patent has no novelty, such belts having been made for many years; the belt differs from Gandy's belt in that it is not made of folded canvas, stitched and oiled, and as a substitute for the Gandy belt, I should say that it has no practical value.

TESTIMONY OF DELAFIELD.

Stevens' patent is not for a belt, but for the process of making a belt. His specification claims "the mode of weaving, hereinbefore "described, by which means I obtain my improved bands or straps "for communicating motion to machinery and other purposes." Stevens' belt, as produced by his patented process, first, from my knowledge of weaving, I should deem it impossible to throw the series of wefts in forming several plies woven in one operation, close and hard, as demanded in the production of a hard-woven canvas, thus leaving the belt in a condition to stretch constantly until utterly destroyed by use. It is impossible to avoid the selvage edge being exposed to the friction of shifting forks, thus wearing the belt, leaving the several plies disconnected, and destroying its integrity in a very short time. There is no evidence of longitudinal lines of sewing used in the Stevens' belt, nor of the use of oil or other material as a protection from moisture, acids and other usual destructive influences. Therefore, in the hard weaving, protection of

selvage, additional strength and compactness caused by the longitudinal and close lines of sewing, and in the protection from internal destruction by friction of fibre, and exterior destruction by moisture, acids, etc., composing the value of the Gandy belt, I deem the Stevens belt entirely different in detail and in combination, and impossible to substitute for the Gandy belt.

STREET PATENT.

The only other patent referred to by the Patent Office as ground for rejecting the application is that to Edwin A. Street, American patent, dated April 14th, 1874. The patent appears in the case as Complainant's Exhibit, Street's Patent. It is for an india-rubber belt. The belt is as near like that of the applicant as any other india-rubber belt, and no more. It is not made of *hard woven* canvas. The lamina are not stitched together, in the sense in which the lamina of the Gandy belt are stitched over their entire surface. The several lamina are not drawn in *absolute contact with each other*. It is not *saturated with oil*. It has none of the properties of the Gandy belt. The testimony of the above mentioned witnesses, as to this belt, sufficiently points out what it is and also the difference between it and the Gandy belt. The witnesses testify as follows:

TESTIMONY OF MACWATTY.

18 Q. I place in your hand a copy of the specification and drawing, making part of the United States Letters Patent, No. 149,805, granted to Edwin A. Street, April 14, 1874. Please state whether you have read it and whether you understand it.

A. I have read it and believe I understand it.

19 Q. State how the belt described in this patent differs from the Gandy belt.

A. The belt described in this patent is simply an india-rubber belt; its practical value—if it has any—depends upon the rubber and its vulcanization; it differs from Gandy's belt in that Gandy's belt is made wholly of folded canvas, no other material being used

A. I have read the specification you place in my hands, and I find a description of a novel method of making an India Rubber belt but the belt is essentially an India Rubber belt, depending upon the canvas for its strength, like all other India Rubber belts and is no more like the Gandy belt than is the ordinary India Rubber belt.

TESTIMONY OF HARRISON,

* * * * *

8 Q. I place in your hands the specification and drawing making part of the United States Patent No. 149,805, dated April 14, 1864. Please to read it, and state whether it describes a belt substantially like the Gandy belt?

A. No. sir ; it is in no sense like the Gandy belt.

TESTIMONY OF FLEMING.

* * * * *

12 Q. I place in your hands the specification and drawing, making part of United States Patent No. 149,805, dated April 14th, 1874 ; please to read it, and state whether it describes a belt substantially like the Gandy belt ?

A. I have read it and am of the opinion that it does not describe the Gandy belt, or any belt substantially like it. The patent is for a novel method of making India Rubber belts; it really has none of the essential qualities of the Gandy belt, and would, in no just sense, be a substitute for it.

TESTIMONY OF DELAFIELD,

* * * * *

Now, as to the Street patent, it claims : "a machine belt made of woven material formed or made in folds or layers, surfaced, united and vulcanized." The vulcanizing necessarily refers to the application of rubber, and is deemed an imperative necessity in the manufacture of this belt. There is no reference made to the necessity of a hard woven belt, nor to the protection of the selvage edges, or to the oiling of canvas used in the belt, and would seem to be the ideal of a person inexperienced in the use of belting. The vulcanization of the rubber, as is well known, produced sulphurous acid during the manufacture, which has a tendency to deteriorate and seriously injure the cotton fabric used as a base. Herein is a wide difference, as Gandy protects from all action of acids by the use of the linseed oil. Hence, the process in the one case tends to destruction and in the other to the protection of the product. The production of rubber belts and their use is too well known to demand an elaborate description, and is all that the Street patent claims to produce. In the Street belt the various plies are coated with rubber solution or rubber compound, and being thus covered and folded, or assembled in

layers, so as to form a structure of uniform width, having its parts united by stitches, the belt is vulcanized, the rubber between the layers are supposed to form a homogeneous connection of the respective parts, and the rows of stitches are for the purpose only of holding the raw materials together until the vulcanization of the rubber shall have completed the belt. It will be seen that it is impossible to draw the stitching together as tightly and compactly as if there was no intervention of the elastic rubber, and the stitching, therefore, adds nothing to the strength or prevention of stretching longitudinally—a vital and very essential difference from the use of the stitching in the Gandy belt. The intervention of the rubber, as a cement, is necessarily inferior, and the imperitive necessity of a cotton fabric as a basis for rubber belts, carries by implication the inability of the rubber to withstand tensile strength.

In the construction of the Gandy belt, if between the plies an elastic material intervened, as in the case of Street, it would be absolutely impossible to draw the stitches hard and the several lamina together, rendering them elastic, and would make the belt worthless; so as to make a firm non-elastic belt.

Gandy no doubt is well aware of the various objections to rubber belting inherent in its manufacture and use. I believe that his belt has thoroughly overcome the objections to india-rubber belting, avoiding the detertoration of the cotton fabric by vulcanization, the destruction by heat and friction of the rubber facing, and the stretching so annoying and expensive by loss of time in taking up the belts,

It is submitted, that an examination of these patents to Street, Newton and Stevens, in connection with the testimony above quoted, and a comparison of them with complainant's belt, makes out a case of sufficient novelty in favor of complainant to support a patent.

Statement contained in the Application.

But the application was not rejected solely or principally upon these patents. They were referred to by the office as illustrating the state of the art. Had there been nothing else in the way, the Commissioner would doubtless have granted a patent for the belt. The real reason for rejecting the application was because the invention was anticipated, by belts previously made by the inventor him-

self. The Court will observe that in the specification the following paragraph occurs:

I would remark that I am perfectly aware that belts or bands of cotton canvas or duck are not new, as such have been made previous to my invention by folding and sewing, the sewing machine being used for such sewing or stitching. I myself have manufactured and sold belts so made for over four years. I am also aware that belts or bands have been made by weaving cotton into the form and thickness of such belt or band, and afterwards saturating such belt or band with oil, such as boiled linseed oil. I myself have manufactured and sold such belts for over three years. The objection to the folded belt is that the same is not durable, having been made of soft woven canvas or duck, and the oil is not interlarded between the folds of the belt, and is not intermingled with the fibre of the material, and the belt is detrimentally affected by variations in the atmosphere. The obection to the woven and oil-saturated belts consists in their excessive elacticity and their being of minimum durability, for when the selvage is cut the whole belt is apt to give out.

By this statement it appears that when the inventor commenced to manufacture his belt in England, he made it of soft canvas before he hit upon the idea of making it of hard canvas and softening that canvas with oil. And upon this paragraph the application was really rejected. The examiner insisted that by the inventor's own statement it appeared that the belt made of *soft* canvas was not new, and that there was no invention in substituting *hard canvas* for *soft canvas* as an element composing the belt.

The following are the final decisions of the Board of Examiners-in-Chief, and of the Commissioner in person upon the application:

No. 4,855.

U. S. PATENT OFFICE }
March 21, 1879. }

Before the Examiners-in-Chief on appeal.

Application of Maurice Gandy for a patent for an improvement in belts or bands.

This case comes again before us with Exhibits, which show, in material form, what was acknowledged as the state of the art in the original specification. These Exhibits, *and the admissions in the original specification*, fairly and fully disclose the state of the art as found by the Examiner. The distinction which can be made between the product of applicant and that which preceded it, is that it is composed of hard instead of loose woven fabric. A belt which

will not stretch, is due to the substitution of hard woven material. The belt, as a whole, as made by applicant, does not stretch, nor is it affected by thermometric or hydrometic changes. The latter qualities are due to the treatment with the oil or paint, which treatment, however, is admitted to be an old practice. Nothwithstanding there is a distinction in the claim, and a difference in the resultant procuct made by applicant from anything which preceded it, and which is more clearly brought to our attention at this time, than heretofore, we again affirm the Examiner's decision.

V. D. STOCKBRIDGE,
R. L. B. CLARKE,
H. H. BATES.
Examiners-in-Chief.

The "distinction" is without a difference in a patentable sense, being entirely due to the superior fabric selected, and which is not of the applicant's invention, and requires no invention in its substitution.

H. H. BATES,
Examiner-in-Chief,
U. S. Patent Office.

Ex-parte Maurice Gandy:

Appeal from the Board of Examiners-in-Chief.

The claim of the applicant is for:

"The new article of manufacture, consisting of a belt composed "of two or more plies of hard woven cotton canvas or duck, satura- "ted with oil, and united with rows of stitching."

The main point of excellence in the applicant's belt, is alleged to be found in the use of the "hard woven" cotton canvas or duck. In this particular, and in all others, the sample presented is of the very best quality, but I do not think it is patentable, in view of the state of the art, as shown by the references cited by the primary examiner. The incorporation of the hard woven cotton canvas or duck into the belt does not seem to me to involve sufficient invention to sustain a patent.

The decision of the Board of Examiners-in-Chief, is affirmed.

H. E. PAINE,
Commissioner of Patents.

April 7, 1879.

By these decisions the ground upon which the application was rejected is plainly indicated. But, if your Honors please, both of these decisions overlook the fact that by the paragraph above quoted from the specification, it appears that the *folded* belt theretofore made by the inventor was not oiled, leaving out an element that was absolutely essential to make the belt of any value, if made of hard

canvas. The *solid* woven belt referred to in the paragraph was oiled, but not the *folded or laminated* belt, so that the new belt contained not only the novel element of *hard canvas*, but also the oil combined with that canvas, by which the belt was made proof against atmospheric changes, and was made pliable and kept from cutting itself upon the pulley. The new belt, for which the inventor is endeavoring to get a patent, then, contains two elements not contained in either of the belts referred to in the paragraph quoted, and both of which are necessary to make a belt of any practical value. The one, while it is oiled, is not a folded or laminated belt at all; nor is it made of hard canvas, and is wholly wanting in body, firmness and hardness, as the necessary result of the method of making it.

The other, while it was a folded or laminated canvas belt, stitched together, was soft and mushey, being made of soft canvas. It not only lacked the elements of hardness and firmness, but it lacked also the oil necessary to make the hard canvas pliable, and protect it against wet or dampness. The new belt involved not merely the substitution of the hard for the soft canvas, but it involved also the *addition of the oil to the hard canvas*, by which *that* canvas could be made available as part of the structure.

The Court will observe that we are considering this invention as a product—as a thing when produced. The law authorizes a patent for any new and improved manufacture. Now, as applied to this case, an "improved manufacture" means a belt different and better than any other belt of its class. The differences between this belt and all other belts of its class, is the difference between success and failure of the belt—a difference which, when found in a completed product, is, it is submitted, sufficient to support a patent.

Before closing upon the question of patentable

novelty, we beg leave to urge upon the attention of the Court the fact that *the complainant was the first to make a laminated canvas belt, the several lamina of which were stitched into absolute contact over their entire surface and saturated with oil, and that, whether made of hard or soft canvas.*

Mr. Gandy did not mean to say, and in fact did not say, in the paragraph above quoted, that such a belt was old when oiled; neither did he mean to say that such a belt was old without the oil, in the sense that others had made such belts before him. In his specification Mr. Gandy merely says in substance that folded and stitched belts canvas are not new, because, "I myself have made such belts for the past four years," but they are of little practicle value, unless they are made of hard canvas saturated with oil. That is really the substance of the paragraph quoted. Upon the witness stand, Mr. Gandy testifying about this paragraph, says, in answer to Q. 32:

32 Q. I call your attention to the following clause in the specification, making part of your application for a patent for this invention, as filed in the Patent Office, December 1st, 1877.

"I would remark that I am perfectly aware that belts or "bands of cotton canvas or duck are not new, as such have "been made previous to my invention, by folding and sew- "ing, the sewing machine being used for such sewing or "stitching. I, myself, have manufactured and sold belts so "made for over four years."

Did you mean by that statement that others had made and sold such belts as well as yourself, or did you mean that you, yourself, had made and sold such belts in England for upwards of four years previous to your application for this patent in the United States?

A. The statement which you have read from the specification conveys a wrong impression; the word "invention" raises the inference that others had made the invention besides myself, which is not true in point of fact; the word should be "application," for I was the first to make a belt of cotton canvas, folded and stitched together as I have described, and what was intended to be expressed in the specification was simply that I myself had been manufacturing in England, by way of experiment, and also for sale, belts made of soft cotton canvas, and also more or less of hard canvas, for a period of about four years before I made this application in the United States. I never saw or heard of a belt like mine before I commenced

my experiments in 1873, nor did I know of such a belt being made or sold by anyone else besides myself at the time this application was filed, nor do I know now, or believe that at the time this application was filed, anyone besides myself had ever made or used a belt substantially like mine. At the time this application was prepared, I gave my English solicitor a description of what my invention was, and how it had grown up from its inception to its perfected state, as I have already described, and in writing this specification he has inadvertently raised an erroneous inference, as I have explained. As I understand my invention, and as I gave it to my English solicitor at the time this specification was prepared, it consists of uniting the four following elements: First, the canvas must be hard woven; second, the canvas must be folded so as to bring the selvege inside, and leave the edges of the belt smooth; third, the several plies of canvas must be thoroughly stitched together, so as to bring them in absolute contact; fourth, the belt must be saturated with an oil or a mixture of oils that will soften and continue the hard canvas in a pliant state, so as to prevent it cutting on the pulleys, as I have repeatedly stated. These four elements combined in the belt are necessary to make it of any practical value; and it is for this that I am now, and have been since 1877, seeking for a patent in the United States. Whatever there may be in the specification from which you have quoted that embraces or includes more than this, is erroneous and superfluous.

Now, is it not plainly apparent, upon the face of the specification and of this testimony, that Mr. Gandy was simply describing the *best* way of making his belt, and seeking to patent it in that *way only*. For all that appears to the contrary as to novelty, Mr. Gandy might have had a patent in this country for a laminated canvas belt, stitched over its entire surface and saturated with oil, irrespective of the *kind* of canvas employed in making it, and we know of no good reason why he may not have such a patent now, as it does not appear that such a belt was ever made or used before it was made and used by this complainant, either in this country or in any other. It was the inventor's duty to describe and claim the best way of making the belt, a duty he fully and fairly performed; pointing out how he had previously made his belt, pointing out why it was unsatisfactory and what it was necessary to do to make it satisfactory; and he has limited his claim to the product involving the combination of elements essential to produce it

in its best form, and complainant is contented to have his patent limited to the invention he has claimed. But if it be maintained that the combination, as claimed, is not patentable, for the reason that the inventor himself had previously made a belt that was similar (though not the same), of soft canvas, and it appearing that complainant was the first and original inventor of a belt composed of folded or laminated canvas, having its folds or lamina stitched together over their entire surface and saturated with oil, irrespective of the kind of canvas employed, then we submit that we are entitled to have a patent for such belt, and our prayer to the Court is, that under the power conferred upon it by the section of the statutes, under which we are proceeding, that it grant us patent for the "*invention as specified in our claim, or for any part thereof, as the facts in the case may appear.*"

In this connection we urge upon your Honor's attention the provision of section 4,923 of the R. S. By that section it is provided that:

SEC. 4923. Whenever it appears that a patentee, at the time of making his application for the patent, believed himself to be the original and first inventor or discoverer of the thing patented, the same shall not be held to be void on account of the invention or discovery, or any part thereof, having been known or used in a foreign country, before his invention or discovery thereof, if it had not been patented or described in a printed publication.

Now Mr. Gandy swears in answer to Q 32 already quoted, that he was the first inventor of this belt in England, as well as in this country, irrespective of the kind of canvas employed in its manufacture. And Mr. Macwatty, corroborating Mr. Gandy, says, in answer to Q 11:

2 Q. Please state how long you have been engaged in manufacturing and selling canvas belts upon the plan mentioned in your last answer?

A. I began to manufacture these belts under the direction and supervision of Mr. Gandy in Liverpool, England, in January, 1879, and I continued to assist him manufacturing these belts there until

May of that year ; I then went to Scotland—being most of the time in Glasgow—and was there engaged in selling the belts until December, 1879 ; I then returned to Liverpool and remained in the factory assisting Mr. Gandy until August, 1880 ; I then came to this country for the purpose of assisting in the manufacture of these belts, and introducing them into public use, and I have been engaged in that business ever since ; I have had charge of the Gandy Belting Company factory, in Baltimore, since April, 1881 ; the Gandy Belting Company was organized in Baltimore, in June, 1880, for the purpose of manufacturing belts upon the plan of Mr. Gandy's invention, and commenced to manufacture in November of that year.

10 Q. State whether or not at the time you went in the employ of Mr. Gandy, in 1879, you had ever seen any canvas belts of any kind ?

A. No ; I had not.

11 Q. State whether or not since that time, and during the time you have been connected with this belt, you have seen any canvas belts in use or on sale which were like, or substantially like, this belt of Mr. Gandy, and that had been made previous to the time of your going into the employ of Mr. Gandy, in 1879 ?

A. No ; I never have, either in this country, or in any other.

So also the witness Brown, managing man for Steven Ballard & Company, a manufacturer of belting for twenty-six years, says, in answer to Q 14 :

14 Q. State, if you please, whether, previous to your seeing this Gandy belt, you had ever seen a belt that was like it ?

A. It was an entirely new thing to me, and none of us had ever seen anything of the kind before.

Mr. Phillips, who was traveling salesman for Mr. Gandy, says—Q 465 :

2 Q. State, if you please, how long you have been engaged in handling and manufacturing the Gandy belt ?

A. I went in the employ of Mr. Gandy in Liverpool on the 1st day of January, 1881, and I remained in Mr. Gandy's factory for a period of about three (3) months, until I had learned the method of manufacturing his belt. Then I became traveling salesman for the sale of the belt in Wales and in the middle counties of England. I continued as salesman in England until the 24th of September, 1881. I then came to the Baltimore factory, and have been engaged there upon the manufacturing of the belt ever since.

3 Q. State, if you please, whether or not, at the time you went in the employ of Mr. Gandy in England, you had ever seen any belt like the Gandy belt ?

A. None whatever.

4 Q. State whether, in traveling through England and Wales as a

salesman for this belt, you met with any belt like the Gandy belt which had been made previous to the invention of Gandy's belt ?

A. None whatever.

5 Q. State whether or not, since you have been in thts country manufacturing this belt, you have seen any belt like the Gandy belt that was made before Mr. Gandy's application for this patent ?

A. No ; none whatever.

And the witness Benn, also a travelling salesman, says : * * * *

5 Q. State whether it was ever any part of your duty to travel over England and solicit orders for this belt ?

A. It was ; I commenced to travel and solicit orders for canvas and the belt incidentally in England and Scotland, in the Summer of 1874, and I continued to solicit orders in that way, off and on, for probably two years ; but the belt, at that time, was still in a very imperfect condition, and was folded and sewed by hand, the sewing machines being worked by foot power ; it was not until 1877 that the invention was fairly perfected.

6 Q. State, if you please, whether not, during the time you have been connected with Mr. Gandy in the sale and manufacture of this belt, you have ever seen any belts made of canvas that were substantially like it, and that had been made previous to the time that Mr. Gandy had perfected his belt.

A. No, sir, I never did ; and I think if such a belt had existed, I should have come across it in my travels, or should have heard of it, at least, which I never did.

So also the witness Richards, became acquainted with the Gandy belt in 1877, and he says :

7 Q. State whether or not previous to your becoming acquainted with the Gandy belt you had ever seen a canvas belt that bore any resemblance to the Gandy belt ?

A. No, I never did.

And the witness Harrison, had been manufacturing belting for thirteen years. He says : * * *

5 Q. State, if you please, how long you have known such belt ?

A. About five years.

6 Q. Please to state whether or not you ever saw a belt like the Gandy, previous to the time you saw Mr. Gandy's belt.

A. No ; I never did.

The witness Fleming had been manufacturing belting for twenty-seven years. He says : * *

4 Q. State if you are acquainted with the canvas belting manufactured by Maurice Gandy ?

A. I am ; and have been for about seven years.

5 Q. Please to examine the specimens of belt now shown you, and state if you recognize it as a specimen of the belt referred to in your last answer?

A. It is a specimen of the belt known to me as the Gandy belt.

Specimen offered in evidence and marked "Fleming's Exhibit."

6 Q. Please to state whether or not you ever saw a belt like the Gandy belt previous to the time that Mr. Gandy commenced the manufacture of the same?

A. No, I never did; nor did I ever hear of such a belt previous to that time.

It is submitted that this testimony of complainant, supported by the corroborating testimony quoted, in the absence of anything to the contrary, is certainly sufficient to establish the fact that Gandy *believed* himself to be the first and original inventor of the belt, irrespective of the kind of canvas used in making it, and there being no evidence that it had been patented, or described in any printed publication prior to the filing of the application, under the statute above quoted the fact of its public use in England does not preclude him from obtaining a valid patent here.

But we do not seek to enlarge our claim, we are satisfied with it as it stands, and we urge our right to a patent for it, not only because we invented the belt having in it the element of hard canvas, but because we were the first to invent and make the belt, irrespective of that element, and that we ought not to be denied a patent for what we do claim because we have omitted to claim all we might have claimed.

When this belt was first before the Board of Examiners-in-chief, it rendered the following decision:

No. 4,855.

U. S. PATENT OFFICE,
July 16th, 1878.

Before the Examiner-in-Chief upon appeal.

Application of Maurice Gandy for a patent for belts or bands, filed December 1, 1877.

There is nothing new in this case. Canvas belts are old. Longi-

tudinally stitched canvas belts are old. And oiled canvas belts are old. The aggregation of these elements to produce any single result might be sufficient to sustain a patent, but the stitching gives its merit to the belt whether it is oiled or not, and the oil protects it against the elements, in the same way, whether it is stitched or not. Moreover, the patent of Street includes stitched canvas belts treated with cement, or rubber solution, which operates, incidentally at least, as a protection to the fabric. Examiner's decision refusing a patent must be affirmed.

Now, in answer to that decision, we deny (1), that folded canvas belts (as distinguished from the so-called rubber belts) were old ; we deny (2), that canvas belts having their several plies held together by stitching were old ; we deny (3), that any kind of oiled canvas belts were old. These findings of the Examiner were predicated upon the statements contained in the specification. We have seen that these statements referred to Gandy's own experiments, and not to the work of others. All the patents, belts or inventions referred to by the Examiner to show the state of the art, or to anticipate the invention of the applicant, appear in evidence here and we have examined them all, considered them in detail before this Court, and we submit that there is nothing in them to warrant the statement upon which the foregoing decision is predicated, and we submit further that the statement in the examiner's answer found on page 12 of the record, that it was old to use hard woven canvas in the manufacture of belts, is not justified by the patents referred to. There is not one word in any of those patents about hard woven canvas, nor is there one word about canvas belts, *as such*, nor do any of these patents show or describe a product like ours, nor do they show or describe *any product* that will take the place of our belt.

What we want is a patent for *our product*, resulting from the combination of elements described. We do not want a patent to cover Newton's belt or Stevens' belt or Street's belt. These are

different products, resulting from a combination of different ingredients, and, as we understand it, this Court has power to grant us a patent for our invention as claimed, or claimed in such manner as the Court may think justified by the facts, irrespective of anything that may have been done in the Patent Office or in the Court below, provided the Court is of opinion that our product is worthy of a patent. In short, the statute leaves it with the Court to say, upon consideration of the whole case, whether the applicant has made any invention for which he ought to have a patent, and to do in that behalf as to the Court may seem just, according to the prayer of the bill.

Just where the skill of the manufacturer terminates, and the genius of the inventor begins, is often very hard to determine. But in considering the question of invention there is one fact in this case worthy of note, and that is the fact that it required a tentative effort on the part of complainant, according to his own testimony, corroborated by the testimony of Mr. Benn, beginning in 1873 and ending in 1877, to make a satisfactory canvas belt, simple as it may appear, and after it was made the only place in the world where it could be found was in the works of complainant and no where else could a belt be found that was its equal, or that would take its place. We submit these facts as of great weight, in determining the question of patentable novelty ; and we call the attention of the Court to the fact, that in this case where, as the invention is of an improved manufacture, the patentable novelty must be sought in the product, rather than in the means of producing it.

THIS IS AN ORIGINAL PROCEEDING—NOT AN APPEAL FROM DECISION OF COMMISSIONER OF PATENTS.

The third and last question, to which it is nec-

essary to call the attention of the Court, is whether by any act of omission the inventor has forfeited his right to a patent.

It was contended by the attorney for the Commissioner of Patents in the Court below, that under Section 4894 of the Revised Statutes, complainant's right to a patent was barred by failure to file his bill within the time limited by that section. This question was twice argued before the Court below, once on motion, and again at final hearing. That Court was, however, unanimously of opinion, that Section 4894 referred only to applications pending before the Patent Office, and that it did not limit the time when a bill in equity to obtain a patent might be filed.

The statute in question is as follows:

SEC. 4894. All applications for patents shall be completed and prepared for examination within two years after the filing of the application, and in default thereof, or upon failure of the applicant to prosecute the same within two years after any action therein, of which notice shall have been given to the applicant, they shall be regarded as abandoned by the parties thereto, unless it be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable.

The language of this section is explicit. It refers only to applications which are subject to "examination" by the Commissioner of Patents. The fact that the Commissioner is the only person who is authorized to investigate and determine the question of abandonment under this section seems to be conclusive on this point.

The decision of the Commissioner was affirmed by the District Supreme Court on January 30th, 1880, and this bill was filed on May 3d, 1883. But this proceeding, while it must be supplemental to the proceedings in the Patent Office, is nevertheless an original suit in equity to enforce an equitable right like any other suit in equity.

See

In re John J. Squire, 12 *Off. Gazette*, 1025.

Whipple vs. *Miner*, 15 *Fed. Rep.*, 117.

It is not seen upon what other ground it can be considered. The Statute is silent as to the time within which the bill must be filed, and in the absence of any statutory bar, it becomes a simple question as to whether the complainant intended to abandon his application, and there being no *evidence* of such intention, it becomes a question whether upon a delay of three years, under the circumstances, in filing the bill, the Court will *presume* abandonment against the inventor. But can the presumption of abandonment arise in this case? The inventor obtained a patent for his invention in England, in May, 1877. On December 1st, 1877, he filed this application—three years before his invention was put in public use in this country, which use did not begin until November, 1880.

Now under Section 4887 of the Revised Statute, it is provided that:

> SEC. 4887. No person shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid, by reason of its having been first patented or caused to be patented in a foreign country, unless the same has been introduced into public use in the United States for more than two years prior to the application. But every patent granted for an invention which has been previously patent in a foreign country, shall be so limited as to expire at the same time with the foreign patent, or, if there be more than one, at the same time with the one having the shortest term, and in no case shall it be in force more than seventeen years.

The invention in this case was first patented in England. The application was filed here before the invention was put in public use at all, and, therefore, all the requirements of the law having been complied with, it is submitted that no *presumption* of abandonment can arise in view of the provision of the Statute above quoted and of the facts in this case.

It will be observed that the statutes do not require a bill to obtain a patent to be filed before the invention has been in public use two years. No such limitation could have been contemplated, because the bill cannot be filed until the remedy by appeal in the Patent Office and the Supreme Court

of the District of Columbia has been exhausted, and the application may be filed any time before the invention has been in public use or on sale for two years. An application may be filed when the invention has been in public use twenty-three months. In such a case, if the application were finally rejected, it would be *impossible* to file such a bill before the invention had been in public use two years. It would probably be in public use from three to five years before remedy by bill in equity could possibly be invoked.

The question of abandonment raised on an application for a reissue to broaden claims is entirely different from any question presented in this case. In a case of reissue the applicant has accepted a patent of limited scope when he had a right to obtain a broader one. Through inadvertance, accident or mistake on his own part, he has omitted to properly claim his invention, and the patent is a formal declaration to the public that what is described and not claimed is either old or is dedicated to its use. Under such circumstances it is held that the inventor will not be permitted to withdraw what he has formally and notoriously dedicated by his own negligence to public use, except under specially favorable circumstances.

Mr. Justice Bradley, delivering the opinion of this Court in *Miller* vs. *The Brass Co.* (104 U. S., 350), said :

"It must be remembered that the claim of a specific device or combination, and an omission to claim other devices or combinations apparent on the face of the patent, are, in law, a dedication to the public of that which is not claimed. It is a declaration that that which is not claimed is either not the patentee's invention, or, if his, he dedicates it to the public. This legal effect of the patent cannot be revoked unless the patentee surrenders it and proves that the specification was framed by real inadvertence. accident or mistake, without any fraudulent or deceptive intention on his part ; and this should be done with all due diligence and speed. Any unnecessary laches or delay in a matter thus apparent on the record affects the right to alter or reissue the patent for such cause. If two years' public enjoyment of an invention with the consent and allowance of the inventor is evidence of abandonment, and a bar to an application

for a patent, a public disclaimer in the patent itself should be construed equally favorable to the public. Nothing but a clear mistake, or inadvertence, and a speedy application for its correction, is admissible when it is sought merely to enlarge the claim." * * * "In reference to reissues made for the purpose of enlarging the scope of the patent, the rules of laches should be strictly applied; and no one should be relieved who has slept upon his rights, and has thus led the public to rely on the implied disclaimer involved in the terms of the original patent."

And in the subsequent case of *Hahn* vs. *Harwood*, *112 U. S., 354*, Mr. Justice Bradley said (p. 360):

"Conceding that it is for the Commissioner of Patents to determine whether the insertion of too narrow a claim arose from inadvertence, accident or mistake (unless where the matter is manifest from the record), the question whether the application for correction and reissue is, or is not made within reasonable time, is, in most, if not in all of such cases, a question which the Court can determine as a question of law, by comparing the patent itself with the original patent, and, if necessary, with the record of its inception. The reason for this was fully explained in the case of *Miller* vs. *Brass Company*. The taking out of a patent which has (as the law requires it to have) a specific claim, is notice to all the world, of the most public and solemn kind, that all those parts of the art, machine or manufacture, set out and described in the specification, and not embraced in such specific claim, are not claimed by the patentee; at least, not claimed in and by that patent. If he has a distinct patent for other parts, or has made application therefor, or has reserved the right to make such application, that is another matter, not affecting the patent in question. But so far as that patent is concerned, the claim actually made operates in law as a disclaimer of what is not claimed, and of all this the law charges the patentee with the fullest notice."

"Then, what is the situation? The public is notified and informed by the most solemn act on the part of the patentee, that his claim to invention is for such and such an element or combination, and for nothing more. Of course, what is not claimed is pubilc property. The presumption is, and such is generally the fact, that what is not claimed was not invented by the patentee, but was known and used before he made his invention. But, whether so or not, his own act has made it public property, if it was not so before. The patent itself, as soon as it is issued, is the evidence of this. The public has the undoubted right to use, and it is to be presumed does use, what is not specifically claimed in the patent. Every day that passes after the issue of the patent adds to the strength of this right, and increases the barrier against subsequent expansion of the claim by reissue under a pretence of inadvertence and mistake." * * * *

Both of these cases clearly distinguish between a

reissue to broaden claims and a reissue to narrow claims or correct errors of description, and hold that while lapse of time before applying for reissue is of prime importance in the former case, it is of small consequence in the latter. The difference between the two rests in the fact that when reissued to narrow claims, the original patent contains no disclaimer, express or implied. It will be observed that in both cases the reissued patent takes from the public something it previously enjoyed, because even where the claims are limited by reissue the inventor surrenders a too broad, but *invalid* patent; and receives a narrower, but *valid* patent.

Although the case before the Court, as far as the question of abandonment is concerned, resembles in its essential features a re-issue to narrow claims more than it does a reissue to broaden claims, yet it differs from both, and the complainant here has equities superior to those of any applicant for a reissue.

Through the mistakes of the Patent Office, the complainant has already been subjected to great hardship by being denied protection for his invention for many years, and even if he obtains a patent now, in view of his English patent, it will be of limited duration. He has complied with all the provisions of the law. His invention has failed to obtain protection through no inadvertence, accident or mistake on his part. He has not accepted a patent with too narrow claims. The public has had no formal notice that the invention is old or is dedicated to its use. He does not ask permission to correct his own mistakes, as every applicant for a reissue does, whether he seeks to limit or expand his claims; but he asks this Court to correct the errors of the Patent Office, and to give him protection, which has been unjustly denied, for his invention.

In the absence of any statutory limitation as to

the time in which a person may commence an action to sustain or enforce an equitable right, it would seem that abandonment, which is primarily and essentially a fact to be established by proof, could not be presumed in the present case.

Respectfully submitted,

AMOS BROADNAX,
Of Counsel for Complainant.

122-432

(EVENING POST JOB PRINTING OFFICE—N.Y.)

Supreme Court of the United States,

OCTOBER TERM, 1886.

MAURICE GANDY,
Appellant,

vs.

E. M. MARBLE, AS COMMISSIONER OF PATENTS, ETC.

No. 277.

Appeal from the Supreme Court of the District of Columbia.

SUPPLEMENTAL BRIEF FOR APPELLANT.

Summary of Elements of Novelty in Appellant's Belt.

The invention in controversy consists not only in a novel *combination* of elements, but four of the elements are in and of themselves *novel elements* in machine belting. These novel features are: (1) the use of oil for the purpose of protecting the belt from atmospheric and thermal changes, to prevent the inside lamina crimping and cutting on the pulleys, and to make the belt hug and "draw" on the

pulleys; (2) the use of hard-woven canvas to avoid stretching; (3) drawing and holding the several lamina hard upon, and in actual contact with, each other by rows of stitching extending across the entire width of the belt, to make it firm and to increase its tensile strength. The strength of each of the lamina is thus united upon and diffused through all the rest. It is a fact that a given amount of cotton woven in hard, thin sheets and then stitched together will have infinitely greater strength, firmness and solidity than the same amount when woven in a thick body; and (4) folding the belt so as to inclose the selvage edges in the body of the belt, to protect them from wear, and to present smooth edges to the wear of the guide forks. This last feature is clearly shown in the specimens or models filed in the Patent Office with the original specifications.

As far as we know, there never was a belt known or used, or described in any printed publication prior to the date of Gandy's invention, which contained *either* of these elements.

The elements of novelty may be thus summarized:

1. Appellant was the first to make an oiled canvas belt for driving machinery, and that irrespective of the kind of canvas (hard or soft) employed, or of the character of belt (laminated or solid).

The only oiled canvas belt mentioned in the record is a solid woven belt made by complainant himself in England. This belt was not brought to the United States, nor was a description of it published in any country, prior to the date of filing the application for the patent in suit.

2. Appellant was the first to make a belt for driving machinery composed of a plurality of plies of canvas (whether hard or soft) tightly drawn together and held in absolute contact with each other by rows of stitching over its entire width.

The plies of the Newton belt are held together by means of cement. The plies of the Street belt are not drawn in contact by the stitching. Sheets of rubber separate the several plies from each other.

3. Appellant was the first to make a belt for driving machinery composed of a plurality of plies of canvas hard-woven, to prevent stretching, saturated with oil, to prevent the hard canvas cutting itself on the pulley, to make it draw and to protect it from atmospheric changes, said plies being tightly drawn together and held in absolute contact with each other by rows of stitching over its entire width.

It will be observed that in the above belt (made of hard canvas) the oil has new functions, to wit: it prevents the hard canvas cutting itself, and makes it "draw" on the pulleys.

4. Appellant was the first to make a belt for driving machinery in which are combined the following elements, viz.: first, several thicknesses of cotton canvas of suitable hardness, folded to inclose the edge or selvage of the cloth in the body of the belt, making both edges of smooth folds; second, a series of close rows of stitching, by which the several thicknesses of canvas are drawn hard upon each other to give the belt firmness, strength and durability; third, saturating the belt with a suitable oil, or mixtures of oils, to prevent the hard canvas cutting itself to make it "draw," and to protect the belt from dampness and atmospheric changes.

In this belt the canvas is folded so as to inclose the edges of the cloth in the body of the belt—and in this respect, also, it differs from Street and Newton, which are the only laminated canvas belts referred to in the record.

5. Appellant was the first to make a belt by the following process, to wit: first, uniting together a plurality of plies of hard-woven cotton canvas by means of stitching; second, preparing a bath of linseed oil suitably thinned by heat, or the introduction of a thinning material to make it more readily penetrate the canvas; and third, saturating the canvas with said oil or mixture, and passing it through rollers for the purpose of forcing the oil into and incorporating it with the lamina and fibre of the entire structure.

APPELLEE'S BRIEF.

Replying to the brief filed on behalf of appellee, we submit the following:

Complainant's right to take testimony and adduce proofs in this case to support his claim to a patent is undoubted. (*In re John J. Squire*, 12 *Of. Gaz.*, 1025; *Whipple* v. *Miner*, 15 *Fed. Rep.*, 117.)

The testimony taken in this cause is both relevant and necessary. By far the largest part of the testimony is expert. John Macwatty, John Henry Phillipps, William Benn, S. B. Brown, Maurice Gandy, T. P. Richards, R. D. Harrison, Francis Fleming, H. W. Peace, W. A. D. Bauman and Clarence Delafield, were all skilled either in the manufacture or use of belting, were qualified as experts, and as such testified concerning the properties and characteristics and value of the Newton, Stevens, Street and Gandy belts. The admissibility of this class of testimony seems to be admitted by counsel for appellee.

Again, it is undoubtedly proper for the inventor to testify to the difficulties he surmounted in making his invention, and to explain any uncertain or ambiguous language employed by him in his specification to describe the prior state of the art appertaining to his invention; and it is proper to support this testimony by other witnesses familiar with the state of the art in the territory referred to.

All the testimony falls under one of the heads above mentioned.

The cases of Keystone Bridge Co. *v.* Phœnix Co.; R. R. Co. *v.* Millon, and White *v.* Dunbar, have no bearing on this case, in which the question to be determined is whether a *patent shall be granted*—not the *construction of an existing patent.*

The claim quoted at page 4 of appellee's brief is *not* the claim prosecuted on appeal in the Patent Office.

It is the claim which was originally filed with the application and which was erased by the first amendment, dated March 1, 1878 (see Record, p. 8). It is broader than

the claim substituted, since it was not confined to a *laminated* belt. Appellee bases his argument on this false premises, and supports it by ignoring the testimony of Gandy concerning the statement contained in the specification referring to the state of the art in *England*, where he resides, said testimony being supported by six competent witness. All through his brief, counsel consistently ignores all the testimony taken in support of the bill—as, for instance, where he says, "Nor is it pretended that the oil, in combination with the material of the belt or band, produces any result not usual and readily foreseen."

The Act of 3d March, 1885 (23 Stat. L., 443), regulating this Court's appellate jurisdiction as to the Supreme Court of the District of Columbia, has no bearing on this case. The section quoted reads, "No appeal or writ of error *shall hereafter be allowed*," etc.

This appeal was allowed June 13, 1884 (Record, p. 71), and cannot be affected by this section. This is a case "*touching patent rights.*" (See R. S., Sec. 699, under which this appeal was allowed.)

Besides, the authority exercised by the Commissioner in granting, or refusing to grant a patent, is an "authority under the United States," and the "validity of said authority exercised" is "drawn in question" on this appeal. It is a "suit in equity," and "involves a matter in dispute." There was an order dismissing the bill made in the Court below in this cause, and that order is a "final decree" in this case, as in all others in equity where the bill is dismissed.

Appellant is entirely satisfied with the claim prosecuted in the Patent Office just as it stands.

It is respectfully submitted that the decree of the Court below should be reversed, and said Court directed to enter a decree granting the prayer of the bill.

Respectfully submitted,

AMOS BROADNAX,
Of Counsel for Appellant.

[N 8191]

122-432

APR 27 1887

Supreme Court of the United States.

OCTOBER TERM, 1886.

MAURICE GANDY, APPELLANT,
vs.
E. M. MARBLE, COMMISSIONER OF Patents, and his successor in office as such Commissioner of Patents for the time being.
No. 277.

APPEAL FROM SUPREME COURT OF THE DISTRICT OF COLUMBIA.

Brief for Appellee.

WM. A. MAURY,
Assistant Attorney-General.

Supreme Court of the United States

OCTOBER TERM, 1886.

MAURICE GANDY, APPELLANT,
vs.
E. M. MARBLE, COMMISSIONER OF Patents, and his successor in office as such Commissioner of Patents for the time being.

No. 277.

APPEAL FROM SUPREME COURT OF THE DISTRICT OF COLUMBIA.

Brief for Appellee.

This is a bill filed under section 4915, Revised Statutes, which is as follows:

> Whenever a patent on application is refused, either by the Commissioner of Patents or by the supreme court of the District of Columbia upon appeal from the Commissioner, the applicant may have remedy by bill in equity; and the court hav-

> ing cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention, as specified in his claim, or for any part thereof, as the facts in the case may appear. And such adjudication, if it be in favor of the right of the applicant, shall authorize the Commissioner to issue such patent on the applicant filing in the Patent-Office a copy of the adjudication, and otherwise complying with the requirements of the law. In all cases, where there is no opposing party, a copy of the bill shall be served on the Commissioner; and all the expenses of the proceeding shall be paid by the applicant, whether the final decision is in his favor or not.

The claim of the appellant to a patentable invention under the laws of the United States has been rejected every time it has arisen for decision. As a last resort he filed a bill under the section above given.

There being no pleading or testimony on the part of the Commissioner of Patents, the testimony taken by the complainant would seem irrelevant or certainly unnecessary, with, perhaps, the exception of so much of it as claims to be

expert, since everything necessary to show the character of the asserted invention must appear in the specification and claim, if prepared according to the requirements of law; such specification and claim being verified by the applicant's oath and to be taken as true until shown to be false.

It is not to the testimony, it is not to the specification, it is not to the arguments of counsel, but to *the claim* accompanying the complainant's application for a patent that the court must look to ascertain whether that application finds support in law.

If, then, the complainant failed to state with precision in his *claim* a case for a patent his bill was properly dismissed, it makes no difference what sort of a case he has made in the testimony or in the specification even.

This position is supported by many cases (Keystone Bridge Co. *v.* Phœnix Co., 95 U. S. 278; R. R. Co. *v.* Millon, 114 U. S., 112; White *v.* Dunbar, 119 U. S. 51, *and others which it is unnecessary to mention*).

What, then, is the *claim* that accompanied the application for a patent?

It is "*a belt or band for driving machinery, constructed of hard woven cotton canvas or duck, stitched and saturated and interlarded with oil such as linseed oil or any combination thereof, as herein described.*"

It is only necessary to refer to the specification to show that so much of this claim as refers to the saturating and interlarding the material of the belt or band with oil is not supportable. It is there stated (pp. 6, 7) "that belts or bands have been made by weaving cotton into the form and thickness of such belt or band, *and afterwards saturating such belt or band with oil, such as boiled linseed oil. I myself have manufactured and sold such belts for over three years.*"

Nor is it pretended that the oil, in combination with the material of the belt or band, produces any result not usual and readily foreseen.

Again, it is expressly admitted in the specification "*that belts or bands of cotton, canvas, or*

duck are not new, as such have been made previous to my invention by folding and sewing, the sewing-machine being used for such sewing or stitching".

It seems, however, that all previous manufactures of belts or bands had failed to answer because of too great elasticity, owing to want of compactness of texture.

It was to supply this defect that complainant introduced his new feature of making the cotton, canvas, or duck "*hard woven*," and, where the belt is formed of more than one strip, holding the strips together by rows of stitching one inch apart running the whole length of the belt for its entire width.

It is, then, the hard-woven texture and the rows of stitching that make up all the novelty that is claimed for the improvement.

But it may be doubted whether the rows of stitching are within the claim, for there is nothing in the specification or the claim that indicates that complainant was minded to appropriate that feature to himself. It is in the testimony, only,

that it appears that the process of holding the strips of the belt together by rows of stitching, as above described, forms a material element in the improvement. If this is so the stitching feature of the improvement must be discarded altogether, it being well settled by the class of cases above referred to that an inventor cannot resort to testimony for the purpose of enlarging his claim. Indeed so strict is this court in holding an inventor to the claim, allowing him neither more nor less, that it has very recently held that "while the claim may be illustrated *it cannot be enlarged by language used in other parts of the specification.*" (Yale Lock Co. *v.* Greenleaf, 117 U. S., 559.)

It may be admitted that the complainant's improvement is both novel and useful, "but," as this court has said, "all improvement is not invention and entitled to protection as such" (*Pearce* v. *Mulford*, 102 U. S., 118), and, therefore, the elements of novelty and utility must be combined with some decided exercise of the inventive faculty. If it turn out that the thing or

result produced "was within the circle of what was well known before and belonged to the public" (*Brown* v. *Piper*, 91 U. S., 37, 41), then it comes under the head of mechanical skill or contrivance only, however novel or ingenious the application. As was said by this court, in *Atlantic Works* v. *Brady* (107 U. S., 192, 199, 200), in a passage which has become celebrated already:

> The process of development in manufactures creates a constant demand for new appliances, which the skill of ordinary head-workmen and engineers is generally adequate to devise, and which, indeed, are the natural and proper outgrowth of such development. Each step forward prepares the way for the next, and each is usually taken by spontaneous trials and attempts in a hundred different places. To grant to a single party a monopoly of every slight advance made, except where the exercise of invention, somewhat above ordinary mechanical or engineering skill, is distinctly shown, is unjust in principle and injurious in its consequences.
>
> The design of the patent laws is to reward those who make some substantial discovery or invention which adds to our knowledge and makes a step in

> advance in the useful arts. Such inventors are worthy of all favor. It was never the object of those laws to grant a monopoly for every trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures. Such an indiscriminate creation of exclusive privileges tends rather to obstruct than to stimulate invention. It creates a class of speculative schemers, who make it their business to watch the advancing wave of improvement and gather its foam in the form of patented monopolies, which enable them to lay a heavy tax upon the industry of the country without contributing anything to the real advancement of the arts. It embarrasses the honest pursuit of business with fears and apprehensions of concealed liens and unknown liabilities to lawsuits, and vexatious accountings for profits made in good faith.

Now, to determine whether the necessary element of invention enters into complainant's improvement, it is only necessary for the court to look into the state of the art at the time the alleged invention was made, and, in doing so, the court may take into consideration any pertinent matter of common knowledge, as in *Brown* v. *Piper* (91

U. S., 37, 43), where the court took notice of the fact that the principle on which the patent in question rested was simply that on which the ordinary ice-cream freezer was based, although no reference to the ice-cream freezer had been made in the pleadings and evidence.

Now, appealing to that common knowledge, is it not perfectly manifest that there is nothing new in weaving a textile fabric hard to prevent sleaziness and elasticity? Everybody who uses suspenders is familiar with the fact, and has had his attention called to the elasticity of straps loosely woven and the want of elasticity of straps hard or closely woven.

It would seem to be going a great way, indeed, to say that the application of this widely disseminated information to the case of belts for driving machinery is invention and not mere mechanical skill.

If the systematic study and ingenuity of competent persons exerted for and resulting in the production of a long sought for and much

needed device to prevent the fraudulent removal of tax-paid revenue stamps affixed to packages involved, in the opinion of this court, no exercise of the inventive faculty, and was no more than "the exercise of the ordinary faculties of reasoning upon the materials supplied by a special knowledge" (*Hollister* v. *Benedict Manufacturing Company*, 113 U. S., 60, 72, 73), it is not easy to comprehend how there enters into the complainant's claim any element of invention.

Supposing, now, that the claim covers the stitching feature of the improvement, is it necessary to argue that there is no invention in the idea of holding the strips of the belt together by stitching as already described?

May it not then be said, in the language of Mr. Justice Gray, in *Preston* v. *Manard* (116 U. S., 661, 664), that "In any view of the case, the specification describes nothing that the patentee is entitled to claim, but only what every one has a right to use without his assistance"

But it is, also, insisted that the improvement of complainant was anticipated by the patent granted

to Edwin A. Street, of Massachusetts, on the 14th March, 1874 (*Additional Exhibits*, pp. 8, 9, 10), for a machine belt made of woven material formed or made in folds or layers surfaced, united, and vulcanized substantially as described.

It is unnecessary to inquire whether section 4894, Revised Statutes, applies to this proceeding. That section is in the following words:

> SEC. 4894. All applications for patents shall be completed and prepared for examination within two years after the filing of the application, and in default thereof, or upon failure of the applicant to prosecute the same within two years after any action therein, of which notice shall have been given to the applicant, they shall be regarded as abandoned by the parties thereto, unless it be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable.

Supposing this provision not to apply, it would seem quite clear that equity will make it apply, by analogy. In *Rhode Island* v. *Massachusetts* (15 Pet., 272) the Chief Justice said, speaking for the court: "In cases between individuals, where the statute of limitations would be a bar

at law, *the same rule is undoubtedly applied in a court of equity.*" In *Burke* v. *Smith* (16 Wall., 401) the court says:

> We think a court of equity will not be moved to set aside a fraudulent transaction at the suit of one who has been quiescent during a period *longer than that fixed by the statute of limitations*, after he had knowledge of the fraud or after he was put upon inquiry with the means of knowledge accessible to him.

The same doctrine is laid down in *Preston* v. *Preston* (95 U. S., 203), and other cases.

Section 4894 declares that upon the applicant's failure to prosecute his application "within two years after any action therein, of which notice shall have been given to the applicant," it shall be treated as abandoned unless the delay be shown to have been unavoidable.

Now, it is admitted by the complainant (Brief, p. 55) that the decision of the Commissioner of Patents was affirmed by the supreme court of this District on 30th January, 1880, and that this bill was not filed until 3d May, 1883. Here,

then, were three years and three months, and over, during which the complainant lay supine.

Certainly the public had a right to assume that he had abandoned all idea of further pursuing his application for a patent, and to act accordingly.

It is respectfully submitted that the decree must be affirmed.

WM. A. MAURY,
Assistant Attorney-General,
and Counsel for Appellee.